TEXTILE TECHNOLOGY DIGEST

VOLUME 6 OCTOBER 1949 NUMBER 10

Abstracts

(An explanation of the classification used in the Digest was published in the January (1949) issue (Vol. 6, No. 1) on the page facing the Index to Authors)

FIBERS A

Natural fibers A 1

Apparatus for preparing bast fibrous plants and process. James L. White & Herman W. Hawker. USP 2 480 067, Aug. 23, 1949.

This invention provides an apparatus for preparing ramie and similar bast fibrous materials for further procesing which comprises a series of spaced rotary cutters for cutting the green stalks, as harvested, into short lengths which will yield the desired final staple length; a conveyor for feeding the stalks transversely in succession to the cutters; rotary snaring means for separating the leaves and stems from the stalk lengths; means for removing the separated leaves and stems from the snaring means; means for guiding the stripped stalk lengths endwise; crushing means for flattening the guided stalk lengths to break up the woody and pithy material without damaging the fiber.

COTTON IN THE ANGLO-EGYPTIAN SUDAN. Read P. Dunn, Jr. Memphis, Tenn., Nat'l. Cotton Council, 1949. 56 p. Price: 35¢.

The goal of this study has been to describe the present status and discuss the future possibilities and problems of cotton production and marketing in the Anglo-Egyptian Sudan. The information was gathered during a visit to the Sudan in April, 1948, and supplemented by the literature listed in the bibliography and subsequent correspondence.—*Preface.*

COTTON IN THE BELGIAN CONGO. Read P. Dunn, Jr. Memphis, Tenn., Nat'l. Cotton Council, 1949. 49 p. Price: 35¢.

This report describes the status and discusses the future opportunities, problems and limitations of cotton and cotton textile production in the Belgian Congo. The material for the report

was gathered during a brief visit to the Congo in May, 1948, and was supplemented by correspondence and by literature listed in the bibliography.—*Preface.*

COTTON IN BRITISH EAST AFRICA. (Uganda, Kenya and Tanganyika). Read P. Dunn, Jr., Memphis, Tenn., Nat'l. Cotton Council, 1949. 62 p. Price: 35¢.

This report is intended to be a symposium of facts and opinions regarding the trends and prospects of cotton and cotton textile production in British East Africa, gathered during a short visit by the author in May, 1948, from personal observations and conversations, as well as from the numerous reference publications listed in the bibliography.—*Preface.*

Kenaf—a new fiber. Anon. *Indian Textile J. 40,* 801-2, 806 (June 1949).

Kenaf *(hibiscus cannabinus)* is a fiber new to the Western Hemisphere which is being successfully grown in Cuba and El Salvador as a result of collaborative work between the Latin American countries. It is anticipated that this fiber will be of unusual value, both commercially and strategically, as an effective substitute for jute. Pilot plant production has already started, and it is anticipated that in a short time this material will be available for such uses as hooked rugs, carpeting, twine, burlap bags, electric cables, and oakum.

Kenaf looms as potential fiber. F. Shera. *Cord Age 51,* 8, 10 (Mar. 1949).

The work of the USDA with the Soft Fibre Manufacturers Institute and Latin American countries in the production of kenaf is briefly noted. Kenaf is described as a fast-growing fiber, originally from Indian, a distant cousin of cotton, and an effective substitute for India's jute fiber. The fiber finds uses in twine, bags, burlap, carpeting,

TEXTILE TECHNOLOGY DIGEST is published monthly by the Institute of Textile Technology, Charlottesville, Virginia. In preparing these abstracts, the editorial staff seeks to report correctly the contents of the original papers without reflecting the views of the staff or the members of the Institute. Printed in the U. S. A. Copyright 1949 by the Institute of Textile Technology.

electric cables, and hooked rugs. Kenaf is being grown in "pilot plant" production and U. S. manufacturers are experimenting with it.

Material losses in flax processing. S. A. G. Caldwell. *Textile Mfr. 75*, 264-5 (June, 1949).

The current setback in the British flax growing industry, a reversion to the system of dam retting and hand scutching, will result in the production of indifferently handled flax which will require special preparation and careful nursing through the preliminary dressing operations to avoid excessive waste. Yarn quality and strength depend on machine room performance, and efficiency during subsequent processing demands correct treatment in hackling. A table showing the hackling tool requirements and pin gradations for different classes of flax is given.

Wool or wool noil ball. Harold D. Boynton. USP 2 478 232, Aug. 9, 1949.

A method of making a wool noil ball from a plurality of discs of equal diameter and size consists of securing the discs together, placing the secured discs in a slowly revolving drum for matting the wool fibers together, saturating the shaped mass with a soap solution, kneading the saturated mass in a slowly revolving drum to shape the mass in the form of a ball, and then placing the ball in a fast revolving drum to form a felt on the outside of the ball.

Artificial fibers A 2

Artificial wool, imitation filaments and artificial wool filaments. Kohorn. Indian P. 35 210 (through *J. Sci. Ind. Research (India)*).

Behind the scenes with the new Vinyon N. fibers. A. J. Hall. *Silk & Rayon 23*, 118, 120, 122, 124, 126, 129 (Jan. 1949).

The production and development of Vinyon N and its chemical and physical properties are described.

Artificial filaments from insolubilized proteins. Imperial Chemical Industries Ltd. French P. 930 453, Aug. 8, 1947 (Through *Bull. de L'Institut Textile*).

The coagulated but unhardened filaments are subjected to the action of a solution of formaldehyde in a brine saturated with NaCl at a pH of 4-6, then insolubilized in an acidified solution of formaldehyde and brine containing at least 30 parts of NaCl to 100 parts of water and sufficient amounts of HCl and H_2SO_4 to produce a pH below 1. In practice, the coagulating solution can be

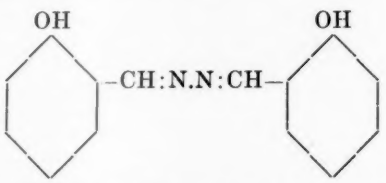
removed from the filaments with the aid of a saturated solution of NaCl and they may then be passed into a solution containing a large excess of the saline solution of formaldehyde. The process is applicable to proteins obtained from vegetable oils (especially peanut proteins) or to casein.

Bobbin holder. Edgar R. Blount (to Celanese Corp. of Am.). USP 2 469 590, May 10, 1949.

A bobbin holder for holding cylindrical spin bobbins in the wet spinning of viscose rayon is claimed. The holder comprises a head secured to a rotatable shaft and an elongated body member extending axially from it. The body member has a plurality of circumferentially spaced longitudinal slots with radially extending arms in each of the slots capable of a slight longitudinal rocking movement. Resilient means, associated with both the outer and inner extremities of the arms, are arranged to rock the arms so that their ends farthest from the head are depressed. Means are provided to cooperate with a bobbin placed on the holder for rocking the arms so that their ends are protracted into gripping contact with the bobbin.

Cellulosic organic acid ester compositions containing 2,2′-dihydroxy benzalazine. Wm. M. Gearhart & Lester W. A. Meyer (to Eastman Kodak Co.). USP 2 464 128, Mar. 8, 1949.

It has been discovered that cellulose organic acid ester compositions with a stable bright yellow fluorescence under ultra-violet light can be prepared by incorporating in them a small amount of 2,2′-dihydroxy benzalazine,



It is preferable to use from 0.05% to 1% of 2,2′-dihydroxy benzalazine, based on the weight of the cellulose ester. Larger amounts may be used, but they begin to alter the physical properties of the plastic. Products made from these fluorescent compositions, including molding plastics, lacquers, yarns, etc., have many uses. They can be used for the purposes for which they would be used without the fluorescing agent, and in addition they give beautiful decorative effects. Molded parts made from our fluorescent plastics may be used on automobile dashboards, for example. Fabrics made from yarns spun from spinning solutions containing 2,2′-dihydroxy benzalazine can be used to produce beautiful theatrical effects.

Conditioning agent. Geo. W. Seymour & Marshall Duke (to Celanese Corp. of Am.). USP 2 479 644, Aug. 23, 1949.

An improved conditioning agent for the treatment of textile materials such as filaments and fibers having a basis of cellulose acetate or other organic derivate of cellulose to render the textile materials more amenable to textile operations comprises essentially a homogeneous mixture of 2 to 15 parts by weight of the de-salted and dehydrated reaction product of a mixture of oleic acid, peanut oil and mineral oil with oleum, containing diamyl phenol and which is neutralized with triethanolamine and an aqueous solution of sodium hydroxide blended into 55 to 65 parts by weight of mineral oil with from 2 to 12 parts by weight of primary lauryl phosphate, from 10 to 30 parts by weight of the diethanolamino-ethyl ester of lauric acid, from 2 to 5 parts by weight of triethanolamine, from 2 to 10 parts by weight of diamyl phenol and 2 to 10 parts by weight of lauryl alcohol.

Continuous processes for the production and treatment of artificial threads. Lustrafil Ltd. Indian P. 38 723-24 (through *J. Sci. Ind. Research (India)*).

Device for the wet treatment, in vats, of rayon threads. Anne van der Mei (to N. V. Onderzoekingsinstituut). Can. P. 447 308, Mar. 16, 1948.

A device is provided for the wet treatment, in vats, of rayon threads produced in a continuous working operation, wherein the threads, for the purpose of treatment with various after-treatment liquids are drawn adjacent one another for a certain bath distance parallel to the surface of the bath by means of driven rollers, which transfer the threads from one vat to the next, alternating each time with idle rollers running in the path, characterized in that the driven rollers are followed by a likewise driven auxiliary roller, and the idle rollers are arranged in pairs in such a way, that during spinning only one roller of each pair is in engagement with the travelling threads, but is able to change place with the other idle roller, the latter then taking over the threads.

Drawtwister. Frank S. Pollock, Jr. (to E. I. du Pont de Nemours & Co.). USP 2 474 912, July 5, 1949.

This invention provides an apparatus for cold-drawing nylon and then collecting it on a twister.

Dry spinning apparatus and method for the production of artificial filaments. Jos. E. Bludworth & Canfield Hutson (to Celanese Corp. of Am.). USP 2 463 676, Mar. 8, 1949.

Substantially increased spinning speeds may be employed in connection with spray spinning processes by aspirating the volatile solvent from the upper portion of the spinning chamber where filaments are extruded by means of a jet or spray of extractant liquid operating at a point adjacent thereto while substantially equalizing the pressure throughout the spinning cabinet or chamber. This is done by communicating the aspirating jet with the lower portion of the cabinet wherein the extractant liquid spray is introduced. The jet acts to draw the solvent vapors out of the upper portion of the cabinet and the vapors, dissolving in the liquid jet, are carried off in solution. This action enables the increased volume of mist or spray introduced at the base of the cabinet to complete the solvent removal in the spinning cabinet without causing the formation of localized back pressures or currents therein to hinder the suitable formation of the yarns or filaments. Accordingly, the filaments may be spun at substantially increased speeds and the volatile solvent effectively and economically removed therefrom.

Fabrication of artificial filaments from insolubilized proteins. Imperial Chemical Industries Ltd. French P. 930 905, Sept. 8, 1947 (through *Bull. de L'Institut Textile*).

The process consists in first treating the filaments in a bath of aqueous formaldehyde saturated with NaCl and magnesium sulfate, then passing them into a bath containing formaldehyde and saturated with sodium and magnesium sulfates, and acidified with H_2SO_4. It is applicable to proteins, especially to globulins from vegetable oils.

Feeding glass in the manufacture of fibers. Ralph L. Tiede. Can. P. 447 344, Mar. 16, 1948.

This invention provides a bushing adapted to melt glass and permit its withdrawal when melted in the form of streams issuing from discharge orifices which contains a plurality of vertically spaced baffles extending substantially from end to end of the bushing and alternately from one of the opposite sides thereof towards but not so far as the other so as to direct the flow of molten material alternately to the sides.

Manufacture of artificial textile fibers. Antonio Ferretti. Can. P. 447 640, Apr. 6, 1948.

In a process for the manufacture of artificial textile fibers from casein and following the stage of spinning a multiplicity of filaments from an alkaline solution of the casein and coagulating

them in an acid coagulating bath, the steps of aftertreating the delicate coagulated filaments comprising initially hardening them in an aqueous bath containing at least one soluble aluminum salt, and then subjecting the hardened filaments to the insolubilizing action of an aqueous formaldehyde bath maintained at a temperature between 25° and 70°C., thereby to render the resulting casein fibers proof against impairment under boiling temperature.

Method of producing prolamine filaments. Clarence B. Croston & Cyril D. Evans (to U. S. of Am.). USP 2 478 248, Aug. 9, 1949.

A process for the production of a prolamine (zein) filament comprises reacting an aqueous alkaline dispersion of a prolamine with an amount of aldehyde equal to from ½ to 10% based on the weight of the prolamine, spinning the dispersion into an acid bath to coagulate the prolamine, curing the spun filament in an acid-aldehyde bath of pH from 1 to 3 at a temperature of from 30°C to 55°C., removing the filament, washing, stretching, and drying it, and then heating the dried filament at a temperature between 140°C and 180°C.

New staple fiber combines viscose and acetate properties. Anon. *Textile Industries 113*, 177 (June, 1949).

Celcos, a new chemical staple fiber, combines the best features of both acetate and viscose staple fibers. It may be cross-dyed, and is further characterized by its ease of processing and absorptiveness for resin and other finishes. Celcos can be processed into yarns on standard carding and spinning equipment.

Principles of modern dialyzing. G. W. van Barneveld Kooy. *Brit. Rayon & Silk J. 26*, 74-6 (July, 1949).

The recovery of caustic soda from pressings in the manufacture of viscose rayon is done by osmosis, or dialysis. The modern dialyzers are built on the filter press style and are double-ended. The development of this style over the years is described. The principle of the dialyzing process is discussed in detail. Charts show the circulation system and graphs show the rise and fall of soda content in water chambers and lye chambers and other pertinent data. Temperatures and membranes used are also discussed.

Process for making artificial wool imitation filaments. Henry Von Kohorn (to Am. Patent Development Corp.). Can. P. 447 777, Apr. 13, 1948.

A process for making artificial wool imitation filaments comprises making alkali-cellulose, shredding the cellulose, sulfidizing the cellulose without ageing it to form xanthate, dissolving the xanthate into viscose, filtrating and evacuating the viscose, and spinning the viscose at a viscosity of at least 500 into a spinning bath containing zinc sulfate, to form filaments and withdrawing the filaments under tension so as to stretch the filaments after surface coagulation.

Progress in Scotland's alginate industry. Anon. *Brit. Rayon & Silk J. 26*, 78 (July, 1949).

Although progress is being made, completely successful results are not expected until 1951. The Scottish Seaweed Research Association is working on improving harvesting methods. Some of this work is described. They are also engaged in surveying both littoral weed and sub-littoral weed. Alginate is used in the production of superfine woolen fabrics and cotton constructions incorporating de-twisted yarns.

Protein fiber deterioration. Anon. *Am. Wool Cotton Reptr. 63*, 32 (Aug. 18, 1949).

Protein fiber deterioration from attacks by molds and airborne micro-organisms is discussed. These fibers require storage protection against warmth and dampness.

Rayon-rubber bonding. Courtaulds Ltd. and D. Entwistle. Australian P. 133 283, Aug. 7, 1946.

A composite article is produced by vulcanizing rubber in contact with regenerated cellucords, which contain or have been treated with an alkali soluble condensation product of a phenol and sulphur to improve the bond strength. The processes of producing a rayon cord by extruding a regeneratable solution containing the condensation product, and of treating coagulated cords with the condensation product, and the products of those processes, are also claimed.

Vicara—a new protein base fiber. Anon. *Brit. Rayon & Silk J. 26*, 72-3 (July, 1949).

See TTD: *6*, 525.

YARN PRODUCTION B

Direct spinning. Anon. *DuPont Magazine 43*, 16-7 (Aug.-Sept. 1949).

This is a brief account of the work of the DuPont Co. in connection with the development of a direct spinning process for the production of spun rayon yarn. Based on a Saco-Lowell experimental

machine for the direct processing of glass fibers, the new process will eliminate the conventional operations of opening, picking, carding, drawing, roving, and spinning. The Saco-Lowell Co. is developing the machine with the cooperation of the DuPont Co.

Fiber preparation B 1

New wool scouring controls. Anon. *Am. Wool Cotton Reptr. 63,* 11, 24 (Aug. 18, 1949).

Features of the automatic wool scouring controls for dumping of wool scouring bowls are described. Reduced costs, better end results, greater extraction of lanolin, and less caustic consumption are some of the results found in the use of these controls.

Processing of wooled sheepskins. E. R. Winton. *J. Soc. Dyers Colourists 65,* 333-5 (July, 1949).

Methods are described for processing sheepskins still containing the wool on them. The normal processing used for hairless pelts cannot be used as certain desirable treatments would cause the wool to be removed. Therefore, rather mild treatments such as soaking in salt water, pickling, and chrome tanning are used to convert the pelt into leather. The use of lime is prohibited in that fleece removal will occur. The fleece side is normally degreased, opened on a carding machine, ironed, straightened (for certain uses only), shorn, and dyed.

Recovery of wool from wool-acetate fabrics. Geo. C. Ward & Roger U. Genazzani (to Celanese Corp. of Am.). USP 2 472 238, June 7, 1949.

A process for the recovery of wool from mixed textile materials containing wool and cellulose acetate fibers comprises immersing the fiber mixture in an aqueous solution containing from 0.1 to 1% of sodium hydroxide and 5 to 25% of sodium sulfate so as to cause saponification of the cellulose acetate fibers and to yield regenerated cellulose. The fiber mixture is then rinsed, and the cellulose fibers carbonized from the mixture. The fibers are finally dried, baked, dusted, neutralized. and rinsed; and wool fibers free of other textile materials are obtained.

Carding and combing B 2

Apparatus for the treatment of webs or fleeces. Thom. Merchant (to Hubert Duesberg). USP 2 479 759, Aug. 23, 1949.

An apparatus for controlling the pressure between a pair of crushing rollers for textile webs, one of which rollers is journalled in adjustable bearings at each end of the roll, comprises a fluid operated device associated with each bearing, each device including piston and cylinder elements one of which elements is stationary and the other movable with the bearing, a closed fluid system interconnecting the cylinder elements and screw means applying an adjustable pressure upon the fluid in the closed system thereby to effect a corresponding pressure adjustment at each of the fluid operated devices.

Percentage of noils by combing. E. Bulwer. *Tidsskrift for Textilteknik 7,* 77-81 (May, 1949).

A detailed account is given of the theoretical calculation of the percentage of noils by the combing process.

Revolving flat card. W. H. T. Croyton. *Textile Age 13,* 20, 24, 28-9 (Aug. 1949).

An analysis of the cotton card is given including discussions of average production, examination of the lap, card cans, the necessity for grinding, anti-loading devices, etc. The need for further card development is also discussed.

Sliver collecting means. Rob. C. Wilkie (to Pacific Mills). USP 2 478 960, Aug. 16, 1949.

A head rotatable upon the open end of a sliver can for feeding sliver into the can.

Spinning B 4

Draw-spinning machines. Bengal Cotton Cultivation & Mills Ltd. Indian P. 38 285 (through *J. Sci. Ind. Research (India)*).

Driving means for the spindles of spinning, twisting, and like machines. Anton Portmann (to Alois Ruckstuhl). USP 2 478 979, Aug. 16, 1949.

A driving arrangement for the spindles of spinning, twisting and the like machines, comprises a spindle, a directly driven driving shaft coaxial with the spindle, a friction driver between the spindle and the shaft constituted by a plate on the spindle, a disc on the driving shaft, the plate and the disc lying upon one another in face-to-face relationship, and a spring continuously urging the parts into frictional engagement with one another, a recessed member on the shaft, and a centering bearing in the recess into which the shaft of the spindle projects.

End breakages reduced by new spinning control device. Anon. *Textile Recorder 67,* 72-3 (July, 1949).

A Swiss invention known as the Hegemax spinning apparatus imparts a preliminary twist to the drafted sliver between the delivery rollers and the spindle, in the place of the usual thread guide. The device is claimed to reduce the end breakage rate from 100 to 30 per 1,000 spindle hours.

Machines for doubling or twisting yarn threads. Dunlop Rubber Co. Ltd. Indian P. 37 316 (through *J. Sci. Ind. Research (India)*).

New alumi-sheath spindle. Anon. *Am. Wool Cotton Reptr. 63,* 80, 100 (Aug. 11, 1949).

The steps in the development of metallic top spindles for paper tubes is discussed, and the design of a new spindle that runs smoothly and has exceptional stability is described.

New ring doubling frame. Anon. *Textile Recorder 67,* 69-71 (July, 1949).

A new doubling frame takes into consideration factors such as increased size of creel packages, larger diameter of rings, and the longer lifts which have become preferred practice in the trade. The frame is suitable for fine, medium or coarse counts, ring diameters up to 5½ inches, gauges up to 7 inches and up to 8 inch lift bobbins. It may be arranged for either dry doubling or with troughs for English system wet doubling.

Non-lubricated rolls attack highest costs. William A. Newell. *Textile World 99,* 110-1, 204, 206 (July, 1949).

Ball bearing top front rolls with sealed in lubrication and nylon gudgeoned middle and back top rolls are being used on some roving and spinning frames. This eliminates having to lubricate top rolls and saddles and also materially reduces the amount of roll picking necessary as less waste accumulates on the ends of the rolls. Improvements in yarn quality and evenness have been reported by users of the new rolls.

Power transmission mechanism for spinning mules. Frank L. Eaton, Jr. & Philip O. Soderlund to John & Bassett, Inc.). USP 2 475 486, July 5, 1949.

A power transmission for a mule-spinning machine comprises an enclosed transmission housing with a constant-speed input shaft extending into the housing. A power source is coupled to the exposed end portion of the input shaft. A constant-speed output shaft journalled within the housing is operatively connected with the input shaft within the housing. A variable speed output shaft extends into the housing, and a speed-change means located within the housing connects the variable-speed output shaft with the input shaft. Means including a constantly rotating unidirectional cam shaft operable from the constant speed output shaft controls the speed-change means in a predetermined cycle.

Ring spinning, twisting and doubling frames and like machines. Haythornthwaite. Howard & Bullough Ltd. Indian P. 37 715 (through *J. Sci. Ind. Research (India)*).

Ring traveler. Henry G. Joseph (to Ring Traveler Co.). USP 2 470 932, May 24, 1949.

A ring traveler of uniform cross-section for a horizontal ring comprises horns which extend inwardly toward each other in substantial alignment and a bow portion which joins the horns with a central portion and straight side portions which join the central portion to the horns. The straight side portions are at an obtuse angle to the center portion, and at an acute angle to the horns.

Roller covers, especially for use in connection with textile machinery. The Dayton Rubber Co. Indian P. 38 179 (through *J. Sci. Ind. Research (India)*).

Shirley high-draft requires little setting. Anon. *Textile World 99,* 127, 188, 190 (July, 1949).

The high draft system for spinning frames developed by the Shirley Institute, Manchester, England, is reported to be performing satisfactorily in several mills. It consists of a single apron on the bottom, driven by the middle bottom roll, which passes around a floating tension roller and a guide bracket. The control element, on top of the fibers, is a polished hollow steel tube, the ends of which are plugged. These plugs ride against stops fastened to the guide bar on which the guide bracket is fixed.

Spinning of cotton yarn. Benjamin L .Whittier & Willis E. Johnson (to Mt. Vernon-Woodberry Mills, Inc.). Can. P. 447 842, Apr. 13, 1948.

A method of spinning cotton yarns comprises drawing a roving strand to reduce the same to required yarn size, wetting the drawn strand, with an aqueous solution containing from .5% to 3% of a wetting agent at the end of the drawing but prior to twisting, and then twisting the wetted strand to form the yarn.

Spinning practices given by Georgia mill men. Anon. *Textile World 99,* 106-7, 184, 186 (July, 1949.

Answers to 10 questions on spinning, spooling, warping, and twisting reported by 35 mills are given briefly. These were reported to the Textile Operating Executives of Georgia at their spring meeting. Questions ranged from the use of oil-less saddles and cap bars on spinning frames to how to avoid wild yarn on Barber-Colman spoolers and warpers. Several tables are included.

Textile spindle. Lester E. Keene & Sam. R. Walsh (to H & B Amer. Machine Co.). USP 2 479 168, Aug. 16, 1949.

The present invention provides a spinning or a twister spindle construction which is extremely compact, economical to manufacture, and flexibly mounted in a manner whereby it will respond to the radial, torsional, and axial thrusts on the arbor through a shear stress of the rubber so as to be self-centering during rotation and will readily accommodate itself to rotation about its point of support during actual running of the spindle.

Winding and spooling B 5

Bobbin positioning attachment for pin boards. Geo. B. Markle, Jr. (to Freeland Spool & Bobbin Corp.). USP 2 477 700, Aug. 2, 1949.

This invention provides a pin board especially adapted to be used in connection with bobbins with removable heads whereby the bobbin when in position on the pin board will be prevented from rotating around the pin, thereby enabling a spanner wrench to be placed over the head of a bobbin into the recesses thereof so that the head can be removed very quickly.

Method of transferring yarn and apparatus therefor. E. I. du Pont de Nemours & Co. Indian P. 37 462 (through *J. Sci. Ind. Research (India)*).

New light package uptwister. Anon. *Can. Textile J. 66*, 40-1 (July 22, 1949).

The M.U.I. double-deck light package uptwister, which is capable of producing 3 types of packages, with a net weight of yarn of up to 16 oz., has recently been introduced in England. A new type of spindle which is carried in a patented double-bearing swivel mounting ensures smooth running up to a speed of 15,000 r.p.m. An automatic, quick-acting brake is incorporated in the mounting which imposes no side thrust or extra load on the bearings. The uptwister has a twist range of from 2½ to 70 t.p.i., although this may be extended if desired.

Process of making pile yarns and fabrics. Harold P. Faris (to Prodesco, Inc.). USP 2 475 019, July 5, 1949.

A process for forming composite chenille or pile-like yarn comprises feeding 2 yarns from a source of supply with one yarn fed at a high speed while subjected to a rotary movement to form a helix and with the other or binder yarn fed at a relatively low speed through the helix. The helix is internally supported for a length of travel beyond the locus at which the helix starts to form around the slow speed yarn so as to prevent the collapse of the helix. Simultaneously throughout the length of travel the low speed yarn is supported and maintained in contact with the interior of the helix. The yarns are then freed from the support and immediately united.

Spinning frame. John A. Kooistra (to Davis & Furber Machine Co.). USP 2 479 497, Aug. 16, 1949.

The vertical movement of the spindle rail sections is accurately guided by means of vertical guide rods positioned at each side of the spinning frame with the guide rods aligned respectively with the vertical frame members and extending between the lower and upper brackets secured thereon. Each guide rod passes through a bushing secured in the spindle rail section. This bushing has a sliding fit on the guide rod and passes through a slightly enlarged aperture in the rail section so as to enable accurate adjustment to be made between the rail section and the guide rod.

Thread antislack device. Oscar Frick & Cecil J. Rhodes (to J. P. Stevens and Co., Inc.). USP 2 479 826, Aug. 23, 1949.

An arrangement for unwinding yarns from cakes or bobbins.

Twister ring lubricating device. Daniel K. Pope (to Texlube Corp.). USP 2 479 401, Aug. 16, 1949.

The present invention provides a means for forcing a minute measured quantity of lubricant through the rings to the inner faces thereof at intervals timed with respect to the reciprocating movements of the ring rail. Means are also regulating the delivery of lubricant to the ring in such manner as to maintain a uniform thin film of lubricant between the inner faces of the rings and the portions of the travelers that bear against the inner faces.

Winding machine. Earl G. Hill (to Textile Appliance Corp.). USP 2 475 895, July 12, 1949.

A winding machine comprises means on a support for rotating a package with a frame mounted on the support to swing about an axis parallel to the axis of rotation of the package. Means on the frame engages the package and causes the frame to swing as the package builds up. A traverse bar is mounted for reciprocating movement lengthwise of the package, and an arm is pivotally connected to the traverse bar to swing about an axis parallel to it. A lever is pivoted on the arm to swing in a plane parallel to the axis on which the frame swings, and a thread guide is carried by the lever. A guide pivoted on the frame engages the lever to swing it as it is moved with the traverse bar. Stationary means on the support changes the position of the guide as the frame swings.

Winding machine. Walter Siegenthaler (to Maschinenfabrick Schärer). Can. P. 447 715, Apr. 6, 1948.

A winding machine in which a thread guide is reciprocated by a rotatable cam member for the purpose of producing crosswinds, characterized in that the cam member is actuated by a driving wheel the speed of revolution of which varies from that of an auxiliary wheel arranged laterally thereof so that, due to lateral cooperation of the 2 wheels, the driving wheel and thus also the cam member is caused to be shifted axially back and forth in consequence of which the traverse of the thread guide is accordingly varied.

Yarn package support. Fred W. Paffen & Harry L. Cornelius (to Celanese Corp. of Am.). USP 2 470 835, May 24, 1949.

A yarn package support has a barrel and a base flange attached to the barrel. The base flange comprises a disk which has a peripheral groove in its circumference and a recess which extends from the groove into the disk. An insert is mounted in the recess and has a groove which extends into the peripheral groove in the disk.

Yarn tensioning device. Chadwick B. Kingsbury (to North Am. Rayon Corp.). USP 2 478 926, Aug. 16, 1949.

This patent provides a tensioning arrangement employing a fixed magnet for effecting a pull on a lightweight tensioning disk member, the arrangement of the magnet being such as to permit the ready adjustment of the intensity of the pull exerted by the magnet on the disk member.

Thread brake for double twisters. Ralph H. Carter (to North Amer. Rayon Corp.). USP 2 478 927, Aug. 16, 1949.

Similar to USP 2 478 926 but provided with a broken-thread catcher within the spindle.

Latch-out device for twisting spindles. Ralph H. Carter & Chadwick B. Kingsbury (to North Amer. Rayon Corp.). USP 2 478 928, Aug. 16, 1949.

Similar to USP 2 478 926 but claiming a system for driving the twister.

Yarn processing B 6

Devices for giving torsion to textile threads. Michalliat. Indian P. 37 642 (through *J. Sci. Ind. Research (India)*).

Filament guide. Malcolm H. Barnes & Edw. L. McCandless (to Dominion Oxygen Co. Ltd.). Can. P. 447 962, Apr. 20, 1948.

A filament guide comprises a unicrystalline body of material selected from the group consisting of corundum and spinel, the body having a glossy scratch-free filament contacting surface substantially identical with the surface produced by intensely heating such a body.

Reduce rayon tension at higher humidities. Rene Bouvet. *Textile World 99*, 118-9, 182 (July, 1949).

Effects of humidity on viscose strength, moisture regain, and acceptable tension are discussed. Up to 70% RH, viscose loses 1% for each 1% increase in RH. Therefore, as humidity increases the grams per denier tension must be decreased. Increased moisture in the yarn also increases the coefficient of friction, thus increasing tension as humidity is increased. Slashing temperatures should be kept to 200°F and the first drying can must have a slightly higher surface speed than the quetsch rolls.

Treatment of cellulose textile materials. Horace Jas. Hegan & Edwin Holroyd Sharples. Can. P. 446 681, February 17, 1948.

In the production of a dyed twisted cellulose yarn the combination with the steps of drying, twisting, setting the twist by a steaming operation, and dyeing, of a preliminary step of treatment in water under pressure at a temperature above 100°C to stabilize the dyeing affinity of the yarn against the effects of uneven steaming.

Yarn impregnating machine. Edw. J. Heizer (to Specialties Development Corp.). USP 2 476 298, July 19, 1949.

A yarn impregnator consists of a lower roll and a pair of upper rolls in rolling contact with the

lower roll and cooperating with it to feed yarn between them. A receptacle containing impregnant is positioned to supply impregnant to the lower roll so that impregnant is carried between the upper rolls. Means are provided for moving the upper rolls back and forth endwise with respect to the lower roll and with respect to each other.

Special yarns B 7

Making covered threads. Aaron Rosenstein. Can. P. 447 910, Apr. 20, 1948.

A method of producing an elastic yarn having an inelastic cover comprises continuously extruding a non-elastic cover thread from a solution, moving an elastic core thread in the general direction of its length and in a path past the extrusion point of the non-elastic thread in which it is maintained out of contact with the solution, and moving the freshly extruded non-elastic thread at a point adjacent its point of extrusion in a path of revolution about the elastic core thread to wind it continuously in a plastic state as it is being extruded directly upon the surface of the elastic core thread.

Yarn products B 8

Bag closure. Roslyn B. Fortuin (to Bemis Bros. Bag Co.). Can. P. 447 920, Apr. 20, 1948.

A bag closure for fabric bags which is removable by tearing without damage to the bag comprises a cord stitched across one face of the bag with an extension beyond the side of the bag affording a hand grip, the cord having an appreciable thickness and being resiliently compressible to provide a resilient cushion for the stitches to prevent rupture of the individual stitches by the strain due merely to the weight of the contents of the container, the portion of the cord clamped by each individual stich being of greater tensile strength than the stitch itself and the stitching being of less tensile strength that the material of the bag, and the cord being of a width only slightly exceeding the width of the stitches whereby the bag may be opened without damage by tearing the cord therefrom and the entire effort of a tearing action is concentrated on the first stitches at the side of the bag and upon the stitches adjacent the tear as the tearing action proceeds progressively across the bag.

Yarn applications B 9

Industrial applications of viscose rayon. C. E. Coke. *Can. Textile J. 66*, 44-50, 62-3 (July 22, 1949).

Viscose rayon for most textile applications has a tenacity of 2.27 g/denier at standard regain, and 1.12 g/denier—wet. One inch cotton staple yarn under the same conditions has a tenacity of 1.79 and 1.97 g/denier respectively. Lilienfeld discovered that if a solution of viscose was extruded into 65% sulfuric acid and stretched immediately an unusually strong yarn could be produced. Rayon made by this method has a tenacity up to 5.6 g/denier and extension at break of 6½%. Further improvements in spinning and stretching led to the development of the "high tenacity" rayons with strengths ranging from 3.80 g/denier with a 11% extensibility to 1.80 g/denier with a 28% extensibility. The former is used in tire cord applications. When used in conveyor belts it has been found that a high tenacity rayon 32 oz. duck gives a strength of 650 to 750 lb. compared with 320 lb. for similar weight of cotton duck. Other industrial uses of high tenacity rayon include high pressure hose, rope, laminates, and as a base for coated fabrics.

Performance of rayons in engineering applications. J. K. Berry, Courtaulds Ltd. *J. Textile Inst. (Proc.) 40*, P662-73 (July, 1949).

The use of an engineering approach to the utilization of textiles to insure a long and satisfactory life is discussed. A detailed description is given of some engineering applications of rayon yarns to tires, conveyor belts, power transmission belting, rubber hose and to various uses in the electrical and chemical industry.

Yarn testing and numbering B 10

Assessment of yarn quality. M. W. Townsend, Wool Industries Res. Assn. *J. Textile Inst. (Proc.) 40*, P566-82 (July, 1949).

Methods of assessing the variation of diameter along the length of a yarn which produces in it an appearance of irregularity and the importance and causes of such faults as slubs, piecenings, and thick ends are discussed. This discussion is confined to the appearance of the yarns, but it is stated that there are other factors such as color, weave, hand, etc., which may be just as important as yarn appearance.

FABRIC PRODUCTION C

Yarn preparation C 1

Cutting costs on slashing and weaving. Anon. *Am.*

Wool Cotton Reptr. 63, 9, 42-3 (July 28, 1949).

A condensed report on the discussion on slashing questions at a meeting of the Alabama Textile Operating Executives is presented.

Liquid treatment apparatus for yarns. Rene Bouvet (to Am. Viscose Corp.). USP 2 478 230, Aug. 9, 1949.

This invention provides an arrangement using a single set of tangentially related size rolls for the purpose of making a plurality of size applications and alternating squeezings, thereby accomplishing thorough and uniform impregnation of the yarn with the size.

New size-cooking control system effects 25% saving. E. P. LaVoie, Avondale Mills. *Textile Age 13,* 30, 34, 39 (Aug. 1949).

An electronic size-cooking control system consists of controls for 2 cooking kettles, one of which supplies size to the tenter while the other is preparing a new batch. Each control system consists of an Electronik air operated controller, timer, push buttons, signal lights and necessary relays, controls for temperature in the tenter pad tank, and size-box level controls. Once the control instrument and times are adjusted to desired cooking and storage temperatures and cooking times, no further adjustment is required. The size is stored in the cooking kettle so that no storage kettles are necessary.

Peanut protein for window shade sizes. Jett C. Arthur & F. W. Cheng, Southern Regional Res. Lab. *Am. Dyestuff Reptr. 38,* 535-7 (July 11, 1949).

It was found that cotton muslin sized on a laboratory scale with peanut protein solutions has tensile and flexibility characteristics similar to commercially sized samples using animal glues. Peanut protein appears to be applicable as a sizing material for use in window shade manufacture and similar applications.

Slasher production and weaving efficiency. Anon. *Am. Wool Cotton Reptr. 63,* 61, 63, 65, 71 (Aug. 11, 1949).

Control systems for size-cooking, storage, size level, size solution temperature, etc. are reviewed. These automatic controls permit production of higher quality fabrics at lower processing costs.

Versatile creel for high speed rayon and silk warping. Anon. *Textile Recorder 67,* 79-80 (July, 1949).

High speed warping depends on creels which facilitate the withdrawal of yarns at high speed and at constant tension, also on the incorporation of devices by means of which each broken end can be located and the application of quick stop-motion attachments which stop the warper before the broken end reaches the warp beam. A new creel is described which incorporates these features and offers a unique stop-motion in which all electrical contacts are by mercury switch which makes possible quick stopping and at the same time eliminates the risk of fire by sparking.

Warp preparation. W. Barker, Ashton Bros. & Co. *Textile Mfr. 75,* 316-8 (July, 1949).

Modern warping, with end stop-motion in the creel, and dispensing with drop rollers, is now carried out at yarn speeds of 900 yds. per min. on precision built machines. Yarn for colored warps pass through more processes than yarns for grey warps. Three recognized methods of preparing colored warps are: (1) Yorkshire dressing, (2) long chain beaming, and (3) sectional warping. For the first 2 processes it is necessary that the yarn be in chain form and it is usually dyed in this state. In sectional warping the yarn has to be prepared in the form of a warper's package after dyeing which means rewinding and extra processing. Sectional warping has an advantage in that it allows short lengths to be made up quickly.

Weaving C 2

Battery mechanism for looms. Harry W. Thatcher & Ed. C. Nichols (to Draper Corp.). USP 2 479 545, Aug. 16, 1949.

The present invention provides means which positively positions the rotary battery of a loom with the bobbin in transfer position out of contact with the bobbin guide and which is capable of adjustment to compensate for wear of the parts; it also provides for new or worn looms a bobbin transferrer having stop means thereon capable of precise adjustment and effective to cause the bobbin in transfer position to be held out of contacting relation with respect to the bobbin guide.

Bobbin retainer for weft replenishing mechanisms. Alex. C. Krukonis (to Crompton & Knowles Loom Works). USP 2 474 632, June 28, 1949.

In a reserve bobbin magazine having a wall forming part of a bobbin guideway in which reserve bobbins are stored, a rib is formed along

the top of the wall opposite the guideway. A resilient sheet metal bobbin stop with a part extending under the rib and another part extending over the wall has an integral resilient arm inclined downwardly and away from the wall of the guideway. The arm normally overhangs part of a bobbin in the guideway and is deflectable toward the wall by a bobbin inserted into the guideway from above. The arm due to the resilience thereof thereafter returns to a position over the part of the bobbin.

Bobbin tip support means for weft replenishing looms. Richard G. Turner (to Crompton & Knowles Loom Works). USP 2 474 641, June 28, 1949.

A bobbin tip support for a weft replenishing mechanism is pivotally mounted on the mechanism. A roll is rotatably mounted on the support near the bottom of the guideway, and a second roll spaced from the first roll is rotatably mounted on the mechanism near the bottom of the guideway. The tip of the bottom bobbin of the stack rests on the rolls, and the weft end of the bottom bobbin passes between the tip and one or the other of the rolls. The rolls are rotated by the tip at the time of bobbin transfer to prevent abrasion of the weft end.

Cam operated transversely engaged clutch for looms. Carl P. Bergstrom & Albert Palmer (to Crompton & Knowles Loom Works). USP 2 478 560, Aug. 9, 1949.

The present invention provides a clutch having shoes mounted on eccentrics so that their position with respect to the loose gear can be adjusted from readily accessible points. It further provides improved means for lubricating the large loose gear bearing in such manner that escape of oil is eliminated without sacrifice of lubrication efficiency.

Driving arrangement for looms. George Wiget (to Aktiengesellschaft Adolph Saurer). USP 2 477 709, Aug. 2, 1949.

According to the present invention, a loom is started or stopped by axially shifting an actuating rod which extends across the major part of the width of the loom and by means of which the supplemental devices can also be actuated, in such manner, that to the throwing-in of any of the supplemental devices, corresponds a predetermined shifting or axial rocking movement of the rod in one direction.

Electric weft detector for looms. Alex. C. Krukonis (to Crompton & Knowles Loom Works). USP 2 479 845, Aug. 23, 1949.

To provide means for preventing a repeated or false indication of weft exhaustion on weft replenishing beats of a loom, the present invention provides means by which the controller pin will be prevented from moving under the actuator lever should the weft detector arm give a false indication with resultant energization of an electro-magnetic device which when energized tends to move the controller under the actuator.

Flat woven fabric. W. S. Nutter (to Goodall-Sanford, Inc.). Can. P. 447 695, Apr. 6, 1948.

A flat fabric presenting an essentially mohair face covering consists of wefts composed substantially of mohair and one or more groups of 4 face warps each composed substantially of mohair and 4 back warps each finer than the face warps and essentially strong, smooth surfaced and composed of vegetable or synthetic fiber, alternating with a group of 4 large cord warps smooth surfaced and composed of vegetable or synthetic fiber, the cord warps weaving in pairs oppositely as flats over and under alternate wefts, the face warps forming $\frac{3}{1}$ broken twill weave in 1, 3, 4, 2 order and the back warps forming a $\frac{1}{3}$ broken twill weave alternating successively with the face warps in 2, 4, 1, 3, order, with the floats of the face warps thus on the face, and the floats of the back warps on the back, of the fabric, the back warps acting to hold the face warps against slipping, the face warps and wefts concealing the back warps at the face of the fabric, and the face warps spreading out and rendering inconspicuous the cord warps at the face of the fabric.

Increased efficiency in weaving. Anon. *Textile Recorder 67*, 64-8 (July, 1949).

Efficiency is increased in British weaving mills from 73 to 87% with lighter work loads for the weavers by using the "more loom" system. Changeover from 4 to 8 looms per weaver is achieved by paying more careful attention to warp preparation; using warp beams with 21 in. diameter flanges in place of the ordinary 17 in. flanges, thus allowing for an increase of 65% in the amount of yarn on a beam; using as great a length of filling yarn per pirn as possible and finally utilizing improved automatic warp stop motions.

Improved carpet looms boost weaving production. H. M. Catlin, Sanford Carpet Co. *Textile World 99*, 125, 206, 208 (July, 1949).

Gradual improvements in axminister, velvet

looms, and jacquard looms have increased over-all loom efficiency. Some mills have gone to multiple-loom assignments. Improvements include automatic stop motions tied in to an annunciator system; larger spools and beams; centralized lubrication; and improved drives.

Laminated picker stick. Washington I. Bullard & L. B. Pitts (to E. H. Jacobs Mfg. Co.). Can. P. 447 706, April 6, 1948.

A laminated picker stick comprises a plurality of layers of plywood and resinous bonding material, combined under heat and pressure widthwise of the layers, and trimmed to a predetermined taper lengthwise, widthwise, and in thickness, producing a controlled degree of whip and spring.

Looms for weaving pile fabrics. Lockley. Wood Ward Grosvenor & Co. Ltd. Indian P. 38 586 (through *J. Sci. Ind. Research (India)*).

Machine for cutting and trimming selvedge thread loops. Saml. E. Vollenweider. USP 2 477 431, July 26, 1949.

This invention relates to a machine for cutting and trimming off change thread loops on the selvedge of colored check fabrics. Machines of this kind are in existence having in the range of the selvedge one or more knives fitted with hooks to facilitate the gripping of the change thread loops. Such knives are, however, liable to easily injure the selvedge. To overcome this drawback the present invention provides rotary gripping elements adapted to feed the loops formed of the change-threads to a cutting mechanism arranged in tandem with a trimming device for subsequent shearing off the thread ends close to the selvedge to which the device is brought by the gripping elements.

New high performance materials for loom parts. Anon. *Silk & Rayon 23*, 938 (July, 1949).

Shortages of the most suitable types of wood for the various loom parts and accessories have stimulated the use of the various new laminated, resin impregnated, compressed woods, which have several advantages over traditional types, particularly in their lightness and smoothness, combined with high strength and durability.

Paper pattern indicated loom dobby. Richard G. Turner (to Crompton & Knowles Loom Works). Can. P. 445 866, Dec. 30, 1947.

In a loom dobby having a lifter knife reciprocating along a given path and having a harness lifter hook normally at one side of the path and a positioner for the hook movable to set the hook in said

path, a sheet pattern having perforated and unperforated portions and located on one side of the given path with the positioner between the hook and the sheet pattern, a mechanism to feed the sheet pattern to place the perforated and unperforated portions thereof progressively in reading position, and means operating from that side of the sheet pattern opposite the path and aligned with the positioner and that portion of the sheet pattern in reading position to transmit a force through the perforated portions of the sheet and communicate the force to the positioner to cause the latter to move the hook from normal position into said given path, the unperforated portions of the sheet pattern preventing operation of said means to move the positioner and permitting the hook to remain in normal position at one side of the path.

Pick shaft snubber. Francis G. Lake & Elvin A. Mastriani (to M. W. Kellogg Co.). USP 2 478 284, Aug. 9, 1949.

A pick shaft snubber comprises a substantially upright snubber leaf spring secured at its lower end near the base of the loom, and adapted to be pressed at its upper free end during overthrow movement of the pick shaft by one of the pick arms of the bell crank secured to the pick shaft. The checking impact of the bell crank arm during its overthrow movement is thereby transmitted through the snubber directly to the base portion of the loom where the loom is most rigid and stable, thereby reducing shock vibrations resulting from checking action to a minimum.

Pneumatic thread remover for looms. Geo. N. Peterson (to Crompton & Knowles Loom Works). USP 2 475 987, July 12, 1949.

A pneumatic thread remover system for a weft replenishing loom, having a thread remaining subsequent to a replenishing operation, is claimed. The system has an air and thread passage with a source of subatmospheric pressures at one end of the passage and an intake mouth for the thread at the other end. A controller in the system is intermediate the source and mouth through which the air passage extends and is capable of assuming 2 positions. In one position the minimum cross section of that part of the air passage in the controller is relatively small, and in the other position the minimum cross section of that part of the passage is relatively large. Means operating incident to a replenishing operation of the loom change the controller from one position to the other position.

Production of weaving effects. Adolf Lanz (to Baumwoll-Spinnerei & Weberei Wettingen). Can. P. 447 673, April 6, 1948.

This invention provides a loom arrangement for producing woven effects, an upper warp thread guide roller for contacting and guiding all of the threads of the warp, a lower warp thread guide roller for guiding a subdivided group of warp threads, and an oscillating member disposed between the upper and lower guide rollers for applying tension to and releasing the tension of the group of warp threads, the guides being so disposed that the group of warp threads is guided from the warp beam over the lower thread guiding roller to the oscillating member and thence to the upper thread guide roller, which also serves for guiding the remaining portion of the warp.

Recent loom developments. V. F. Sepavich, Crompton & Knowles Loom Works. *Am. Wool Cotton Reptr. 63,* 14-15, 24 (Aug. 18, 1949).

A discussion of some recent loom developments includes new warp beam designs, improved motors and loom drives, electronic protection systems, electronic letoffs, etc.

Shuttle deflector. Harold Hoeber (to Hoosac Mills Corp.). USP 2 477 745, Aug. 2, 1949.

This invention provides a guard which will engage and deflect the shuttle if it leaves the race and comes through the shed of the warp, which may be moved out of the way should a warp thread beneath the guard need tying in or replacing, which may be slid out of the way to position along the lay to afford greater accessibility to the warp threads which it would cover when in operating position, and is positioned so that it will engage the shuttle before it reaches the selvedge of the cloth.

Stop motion for weft replenishing looms. Walter H. Wakefield (to Crompton & Knowles Loom Works). USP 2 467 871, Apr. 19, 1949.

A stop motion for a weft replenishing loom provides means to stop the loom if the picker is worn so badly that it permits the shuttle to box too deeply for proper bobbin transfer. The stop motion includes primary and auxiliary shuttle feelers normally in non-detecting position but moved to detecting position on a replenishing beat of the loom. The primary shuttle feeler revokes the replenishing operation if the shuttle is insufficiently boxed, and an electric means controlled by the auxiliary shuttle feeler stops the loom.

Textile manufacture. Lawrence A. Savage (to The Kendall Co.). Can. P. 445 487, Dec. 9, 1947.

A method of weaving comprises inserting filling picks in a warp, and while weaving is taking place moving the yarns of the warp in relation to the path of insertion of the filling picks while maintaining the same tension on the warp yarns across the warp in accordance with a predetermined pattern of change to produce a fabric in which the angular relation of following filling picks to the perpendicular to a line extending in the direction of the warp changes in accordance with the dictation of the pattern.

Unwinding device for weaving looms. Picanol. Indian P. 37 217 (through *J. Sci. Ind. Research (India)*).

Warp stop motion. Harry W. Thatcher & Carl D. Brown (to Draper Corp.). USP 2 479 546, Aug. 16, 1949.

This invention provides: a warp stop motion including support means so constructed and arranged as to provide clear forward passage space for movement of the harness frames therebetween and providing for ready release and removal of the separator bars and detector bars from the support means; an electrical warp stop motion having detector bars having live and grounded electrodes, and including a base and readily removable unitary means acting to positively electrically interconnect the live electrodes of the detector bars in fixed position relative to the base; a warp stop motion the several parts of which are so made that the recesses or seats for the detector and separator bars, and other interfitting surfaces, may easily and economically be machined to provide accurate spacing and seating of the parts while maintaining ease of assembly and disassembly of the bars.

Warp tension control for looms. John D. Skeer, Oscar L. Russell & Ezekiel J. Wilson (to F. C. Huyck & Sons). USP 2 475 059, July 5, 1949.

A warp tension control for non-stretching threads, such as glass fibers, metals, etc. is claimed. The device comprises separate spools each carrying a single warp thread. A first roll has a surface to frictionally grip the threads; and a second roll is in frictional contact with the surface of the first roll and is driven by it. The threads run from the spools over the second roll and between the pinch of the rolls. A scale roll over which the threads pass to the loom after passing around a portion of the peripheral surface of the first roll, oscillates on a mounting. The scale roll and mounting are so constructed and arranged that the oscillations

are controlled by the tension on the warp threads. Means are provided for rotating the first roll, and means actuated by the oscillating movement of the scale roll when the tension on the warp threads is in excess of a predetermined maximum put the rotating means into operation.

Warp tying machine. Charles B. Crandall (to Barber-Colman Co.). USP 2 479 604, Aug. 23, 1949.

The present invention provides in a warp tying machine insertion bar carriers arranged for easy manipulation in the operation of inserting the bars into their respective clamps; it further provides insertion bar carriers for use in combination with an auxiliary holder for the thread ends, which holder is mounted on the warp tying machine for movement into either of 2 positions spaced apart vertically in accordance with the spacing of the 2 pairs of warp clamps.

Warpwise defects may be caused by temples. Al. Frantz. *Textile World 99*, 131, 192, 195-6 (July, 1949).

The use of temples to hold rayon cloth out as close to reed width as possible sometimes results in cloth defects such as barre marks, narrowing of the cloth, and loose warp yarns along the sides. Suggestions are given for the treatment of temples and rubber temple rolls to overcome these defects.

Weaving quality satins. Geo. Creasey. *Textile Age 13*, 52-7 (Aug. 1949).

Suggestions for weaving better satin fabrics at a faster rate without production difficulties are given. Satin constructions, skip draft entry, less costly satin weaves, controlling width, tensioning let-off, and the chafing of warp yarns are discussed; the importance of experienced weavers is stressed.

Knitting C 3

Fashioning means for knitting machines. Richard E. Schletter (to Textile Machine Works). Can. P. 447 854, Apr. 13, 1948.

In a flat knitting machine, in combination, a point comb spindle, pawl and ratchet means adapted to move the spindle in 2 needle steps in the widening direction, a device arranged to be adjusted to change the action of the means to one needle steps, a pawl acting at times to move the spindle in one needle steps in the widening direction, and automatic means to throw the second-mentioned pawl into action.

Feeder mechansim for circular knitting machines.

Roland Peberdy (to The Bentley Eng. Co., Ltd.). USP 2 477 495, July 26, 1949.

A feeder mechanism for a circular knitting machine comprises a feeder arm having a feeding eye at its extremity, and means mounting the arm for movement about a plurality of axes all parallel with the axis of the needle circle and for movement of the feeder eye in a thread-withdrawing path, the first portion of which is radially away from the needle circle and the subsequent portion of which is circumferentially of the circle. The machine has a trapper and cutter for receiving and cutting the thread extending from the withdrawn feeder to the last active needle. The trapper and cutter are located very close to the needle circle.

Knitted fabric. Louis N. Feinstein (to Feinstein Knitting Mills, Inc.). Can. P. 447 559, Mar. 30, 1948.

A warp knitting machine to produce a knitted fabric of diamond shaped pattern comprises 2 guide bars having uniformly spaced guides, a needle bar having uniform spaced needles, each guide of the guide bars being adapted to have a yarn threaded therethrough, a pattern drum having 2 series of links thereon, the first series of links comprising the following pattern: 0, 2, 0, 2, 4, 2, 4, 2 to control the first guide bar and the second series of links comprising the following pattern: 0, 2, 0, 0, 4, 2, 4, 4 to control the second guide bar.

Knitted fabric. Edwin Wildt, Henry H. Holmes & John C. H. Hurd (to Wildt & Co., Ltd.). Can. P. 447 872, Apr. 13, 1948.

In a knitting machine, in combination, needles, means for feeding yarn to the needles and for causing the latter to draw loops of the yarn, wrap mechanism including individually operable thread guiding elements adapted to feed thread to and wrap it around desired needles, and mechanism including individually operable loop transferring elements adapted to transfer loops to needles, the elements being arranged suchwise that there is a thread guiding element and a transferring element for each needle required to cooperate in the production of fancy effects, and the elements being formed at their operative ends with laterally offset portions.

Knitted fabric. Edwin Wildt, Henry H. Holmes & John C. H. Hurd (to Wildt & Co., Ltd.). Can. P. 447 873, Apr. 13, 1948.

Knitted fabric comprises a structure composed of purl stitches and plain stitches knitted from a

ground yarn, and separate threads knitted into wrap effects in at least 2 successive needle wales of the structure, loops of the ground yarn being spread laterally in opposite directions and thereby transferred to the adjoining needle loops from an appropriate intermediate wale where they are interlooped with the combined adjoining loops and the wrap effects.

Knitted method and machine. George Norman (to Spalding Knitting Mills). Can. P. 447 732, Apr. 6, 1948.

A method of knitting with the aid of 2 opposing sets of needles by repetitions of a cycle comprises knitting alternately on the 2 needle sets for a time to produce tubular fabric, then forming a course of loops on both sets of needles, then forming a course of loops on one set of needles alone while casting the last formed loops on the other set, and then proceeding as before by knitting first on one set of the needles and then on the other to again produce tubular fabric.

Knitting machine. Geo. O. Young (to Vanity Fair Mills, Inc.). USP 2 476 344, July 19, 1949.

Knitting machines of the flat or tricot type comprise stationary sinkers; thread guides which move longitudinally of the machine above the sinkers; sinker nibs; hook knitting needles mounted to move up and down through the sinkers and nibs; and means causing the needle hooks to travel in a closed figure 8 path in part within the sinkers and in part between and above the eyes of the thread guides. The movement of the needles is such that the backs of the needles will engage the thread between the guides on the up strokes of the needles, and the needles will hook the thread on the down strokes. Needle closing tongues close the needle-hooks as the points of the hooks enter the sinkers on the down strokes of the needles. Means are provided to operate the tongues in timed relation to the operation of the needles.

Knitting machine cam race. Wm. A. Zieve (to Milton Moskowitz). USP 2 475 170, July 5, 1949.

A cam race for circular knitting machines having a needle cylinder comprises a horizontally extended base member and a cam post receiver rising upwardly from it and inclined laterally with respect to it. A slidable cam post is disposed within the receiver, and a raising cam and stitching cam are mounted on the post. The contacting portions of the receiver and post are curved so that the cam post reciprocates along a helical

path following the curvature of the needle cylinder.

Knitting machine needles. Vanity Fair Mills, Inc. Indian P. 36 128 (through *J. Sci. Ind. Research (India)*).

Knitting method and machine. Eugene St. Pierre (to Hemphill Co.). Can. P. 447 979, Apr. 20, 1948.

In a circular, independent needle, knitting machine having main and auxiliary cam blocks and capable of split knitting, means for causing the needles to knit in succession different yarns under both stitch cams of each cam block and means for positioning the sinkers so that the yarn knitted under each stitch cam will be drawn over the backs of the sinkers.

Knitting needle. Eugene St. Pierre (to Hemphill Co.). Can. P. 447 422, Mar. 23, 1948.

A knitting needle for a circular, independent needle, knitting machine includes a hook, means for closing the hook and a shank, an enlargement on the shank positioned so as to remain below knitted loops on the shank during the normal knitting motions of the needle but to pass upwardly through such knitted loops when the needle is raised abnormally high so that the loops will be temporarily enlarged and will be moved by gravity to a lower position on the shank.

Method of knitting hosiery. Robt. H. Lawson (to Scott & Williams, Inc.). USP 2 475 845, July 12, 1949.

A method of knitting a stocking on circular knitting machines comprises knitting the toe of reciprocatory knit courses of separately knit contrasting yarns to form groups of courses in alternation. The last reciprocatory knit course and the full circular knit course are knit of the same yarn, and the immediately following full circular knit course is knit of a contrasting yarn. The full circular knit courses are knit as loose courses. The subsequent full circular knit courses of yarn are knit in alternation so that the first loose course and the last reciprocatory knit course form the last successive pair of courses of the same yarn and contrast with the immediately following courses to facilitate the engaging of the loops of a loose course on the points of a looping machine.

Pattern area layouts should be of simple shape. Abraham Abrams & Lester Mischeon. *Textile World 99*, 120-3 (July, 1949).

This article is based on a book published by Supreme Knitting Machine Company, Inc. and ex-

plains how to make a layout on graph paper of the pattern area and all adjoining pattern areas. Four examples of different combinations of cylinders and pattern wheels are followed throughout to fully illustrate the technique used. Many illustrations are included.

PATTERN WHEEL DESIGNING FOR CIRCULAR JERSEY KNITTING MACHINES. Abraham Abrams & Lester Mischeon. Brooklyn, N. Y., Supreme Knitting Machine Co., Inc., 1949. 165 p. Price: $3.50.

Practical knitting manuals are not too readily obtained; this one will serve to give the knitter authentic, complete, and up-to-date information on pattern designing. Fundamental theory for the beginner and practical operating procedure for the experienced hand are both included.—*Textile World.*

Seamless hosiery and method of making the same. Lawrence W. Gottschalck. USP 2 474 894, July 5, 1949.

Seamless hosiery and the method of knitting are claimed. The amount of yarn knit to the loop in the loops in courses adjacent to the heel-diagonal at both sides is greater than in the courses at the ankle and at the arch. Each row of the ankle, heel-diagonal and arch portions contains substantially the same number of loops. A larger proportion of the first-mentioned courses are above the heel-diagonal than below the heel-diagonal, and a heel pocket is inserted in the heel-diagonal portion.

Seamless hosiery knitting machine. Lawrence W. Gottschalck (to Chas. N. Woodrow). USP 2 474 895, July 5, 1949.

In a circular hosiery machine, a rotary annular loop-varying stock-shaping cam is provided with means to rotate the cam on its axis for rotative camming action in one direction to make increasingly smaller loops. Means are provided for rotating the cam on its axis in the other direction to make increasingly larger loops, and control means determine the timing and extents of movement in the directions.

Seamless hosiery knitting machine. Jas. C. Williams & Lawrence W. Gottschalck (Williams assignor to Gottschalck). USP 2 474 925, July 5, 1949.

A circular hosiery machine comprises a loop-varying cam with a toothed means for driving the cam and a pawl for operating the toothed means. Means adjustably mounted on the toothed

means bridge the distance between the 2 spaced teeth and render the pawl ineffective when it reaches the teeth. Additional means move the toothed means to bring the bridging means past the pawl at a predetermined later stage in the operation of the machine. Means are provided for forming a heel pocket, and selector means determine the point of formation of the heel pocket. Means on the selector means operate additional means.

Seamless stockings. Geo. Norman (to Spalding Knitting Mills). Can. P. 447 733, Apr. 6, 1948.

A knitted product in the form of a string consists of a series of seamless stocking blanks with closed toes, in which the leg top of one blank is detachably connected to the adjacent blank along the line of juncture between the terminal course of the toe pocket and the corresponding terminal course of the instep portion of the latter blank by a course of temporary connecting loops formed from yarn used in the knitting of the string.

Shrinkage in knitted fabrics—retrospect and prospect. W. A. Dutton. *J. Textile Inst. (Proc.) 40,* P638-52 (July, 1949).

The factors which are of importance where shrink resistance is a requirement and the factors which must be taken into consideration in the production of socks are discussed. Also reviewed are existing manufacturing specifications and methods of inspection of British Army socks. The important shrink resistance producing factors such as influence of fiber quality, yarn twist, and knitting structure are discussed.

Split foot suture. Hemphill Co. Australian P. 133 157, Aug. 23, 1946.

A 2 male split foot suture is composed of 2 courses of one yarn and 2 courses of another yarn in alternation in one male; the other male is formed of 2 courses of the first yarn in alternation with one course of the other yarn.

Take-up device for knitting machines. Frank G. Weisbecker. USP 2 474 962, July 5, 1949.

A work take-up strap for the take-up mechanism of straight full-fashioned hosiery knitting machines comprises a tubular fabric web having means secured to the ends of it for attaching the strap to the work and to a take-up roll respectively. A flat substantially U-shaped metallic spring has its ends secured to longitudinally spaced points of the web, and the web length between the points is substantially equal to the

length of the spring.

Treatment of hosiery. Albert Mellor, Ralph J. Mann, Don. Finlayson & Albert W. Morledge-Hadfield (to Celanese Corp. of Am.). USP 2 478 974, Aug. 16, 1949.

A process of imparting sheerness and uniformity of appearance to hosiery of textile filaments made of stretching cellulose ester filaments comprises wetting the hosiery with an aqueous liquid and subjecting it, while moist with water, to the action of a hydrophobe organic liquid until it appears clear therein and then uniformly impregnating it with from 10% to 35% of its weight of a drying oil and causing the latter to dry without closing the interstices in the hosiery.

Warp knitting machines. F. N. F. Ltd. Indian P. 36 452 (through *J. Sci. Ind. Research (India)*).

Warp knitting machines (Divided out of Indian P. No. 36 452). F. N. F. Ltd. Indian P. 39 301 (through *J. Sci. Ind. Research (India)*).

Wax applicator for yarns, threads, and the like. Melvin B. Coleman & Jesse R. Bennington (to Am. Viscose Corp.). USP 2 474 346, June 28, 1949.

This invention relates to improvements in devices for mounting a cake of wax or lubricant and for directing a traveling yarn or thread over the wax or lubricant, wherein the wax or lubricant is continually presented to the traveling yarn or thread.

Yield chart gives knitting data. Max Mizel. *Textile World 99*, 129 (July, 1949).

A chart to eliminate the figuring of cloth weights by the formula method has been developed for the use of designers and production men. It is made for knitted fabric and shows yield in yards per pound at different widths. The chart is reproduced.

Special fabrics C 4

Apparatus for making hose. Karl Pape (to Resistoflex Corp.). USP 2 478 940, Aug. 16, 1949.

An apparatus is provided for carrying out the process of USP 2 478 939. (See below.)

Cellulosic products. Leonard Doub (to Parke, Davis & Co.). USP 2 474 306, June 28, 1949.

A lyophilic aggregate of independent fibers for use in making surgical dressings is composed of a cellulose having a carboxyl content between about 2% and 23% selected from the class consisting of nitric oxide-oxidized cellulose and partially neutralized nitric oxide-oxidized cellulose. The oxidized cellulose of the fibers is at least partially in the form of its reaction product with a high molecular weight quaternary ammonium salt wetting agent.

Dividing sheet fabric into strips. John H. McCusker (to Rhode Island Lace Works, Inc.). USP 2 476 262, July 12, 1949.

The method of dividing into strips a lace sheet having a plurality of longitudinal strips connected together by longitudinal threads which are soluble in a liquid which will not dissolve the threads of the lace strips and permit ready withdrawal of the strips without tangling is claimed. The method comprises folding the sheet into a foraminous container, subjecting the folded sheet to the action of a solvent to dissolve the soluble threads to form separate strips, and drawing some of the strips from the container directly to a winding device.

Fabric. Lawrence A. Savage (to The Kendall Co.). USP 2 463 122, Mar. 1, 1949.

A new and improved fabric for use in the manufacture of cheese bandages is produced in which the weft yarns forming the adjoining 2-ply fabric areas are fanned out to form alternately converging and diverging fabric areas. The interwoven strip areas extending weftwise of the fabric interposed between and connecting together the 2-ply fabric areas are woven with weft yarns which are inclined by a substantial amount from the perpendicular to the direction of the warp so that the strip areas are correspondingly inclined in alternately converging and diverging relation to one another. The cheese bandages formed from a blank of this description by severing along the line of the interweave will, when opened out, have the shape of a truncated cone, the amount of taper depending upon the amount by which the weft yarns forming the interweaves are inclined from the perpendicular to the direction of the warp in the woven blank. This useful characteristic of the woven fabric is produced without any necessity of employing the complicated harness and cam or jacquard controls which would ordinarily have been required for the weaving of such a pattern. (See also USP 2 396 905 (TTD: *3*, 229) and USP 2 410 394 (TTD: *4*, 52).

Jute tubular sacking cloth. Anon. *Textile Recorder 67*, 76-8 (July, 1949).

Jute sacking cloth is woven in tubular form on

Saint Freres circular jute looms. Two types of looms are made, the 2-leaf, 4-shuttle loom for the manufacture of plain cloth from 6 oz. to 20 oz. hessian and the 3-leaf, 3-shuttle loom for the manufacture of twill sacks. The tubular cloth has only to be cut into suitable lengths and hemmed at one end and sewn up at the other to form finished sacks. The absence of side seams saves material and labor, and sacks so produced are stronger than those made from equal quality material on ordinary flat looms.

Laminated fibrous sheet material and laminated fabric. John C. Nicholson (to Brit. Artificial Resin Co., Ltd.). Can. P. 447 392, Mar. 23, 1948.

A method of making water-proof laminated material comprises arranging a layer of glass filaments over a face of a layer of absorbent fibers, interlocking the fibers with the filaments, impregnating the fibers with a resinous material and applying a resinous material to cover the other surface of the layer of filaments, and curing the resinous material whereby the outer layer of glass filaments is covered with cured resinous material to provide a non-absorbent surface.

Loom for weaving pile fabrics. Wm. T. Picking. USP 2 468 572, Apr. 26, 1949.

A loom for weaving pile fabrics comprises a beat-up lay having a backwards and forwards movement, longitudinally arranged pile wires the rear ends of which are disposed behind the beat-up lay when in its forward position and in front of the beat-up lay when in its rearward position, means for raising and lowering the pile warps and for looping them over the rear ends of the pile wires, the pile raising and lowering and looping means and the beat-up lay operating so that the pile warps are raised looped-over the rear ends of the pile wires and lowered again to a position permitting of the insertion of an upper shot of weft during one complete (forward and backward) movement of the beat-up lay; the pile wires are mounted so that their rear ends can be lowered and raised, and means are provided for lowering and raising the rear ends of the pile wires between the time when the beat-up lay has passed the rear ends of the pile wires on its forward movement and before it passes to the rear of the rear ends of the pile wires on its backward movement.

Method of adhesively bonding components of a hose wall. Karl Pape (to Resistoflex Corp.). USP 2 478 939, Aug. 16, 1949.

A method of bonding 2 layers of fabric forming

part of a hose wall comprises passing the first layer successively through water and finely divided polyvinyl alcohol to coat the surface thereof, forming the second layer over the coated surface, and then subjecting the composite to the action of a steam bath while maintaining the two layers in intimate contact.

Method of producing pile fabric with cut pile of an unique character. Harland W. Day (to Goodall-Sanford, Inc.). USP 2 479 478, Aug. 16, 1949.

The method of producing pile fabric with areas of distinctive contrasting pile which consists in weaving and cutting pile to form a pile fabric having cut pile and loop pile areas formed from the same yarn, in subjecting the fabric to steam at a temperature and for a period sufficient to set the twist in the yarn of the loop pile, and thereafter cutting at least a portion of the loops to cause the cut pile thus formed to possess a distinctive character contrasting with that of the previously cut pile.

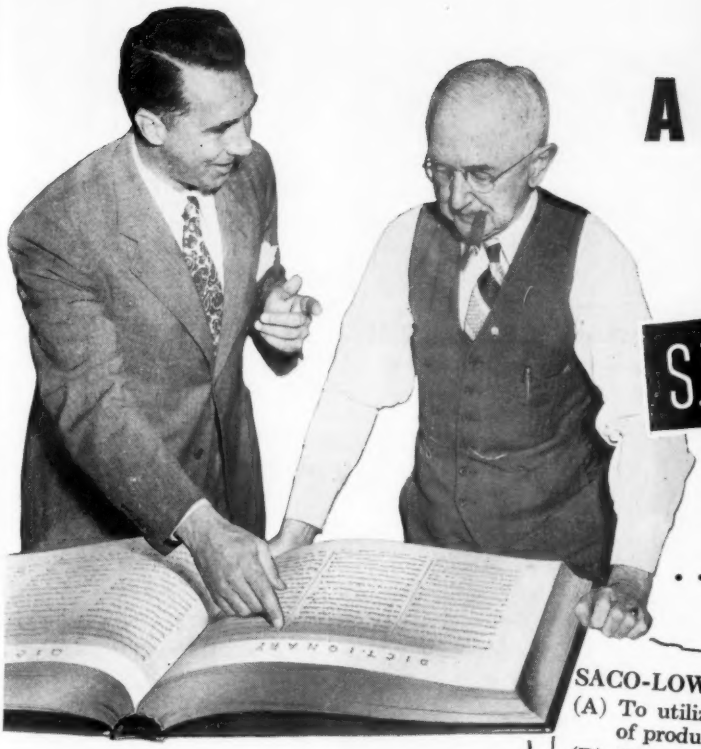
Mixed yarn and fabric. Chandler Robbins, II. USP 2 477 652, Aug. 2, 1949.

This invention provides combining (1) a highly polymerized synthetic thread, such as nylon, which has great strength and elongatability, while, however, being substantially inelastic as compared with rubber threads, but poor adhesion to coating and (2) a thread of lower tenacity and elongatability but good adhesion to coating, e.g., cotton, into a composite yarn by twisting the less elongatable thread around the more elongatable thread in a spiral unbonded to the latter thread, making a fabric from the composite yarn, and applying a coat or a number of coats to the fabric.

Pile carpet strip with a sponge rubber backing and method of making same. Ara T. Dildilian (to Bigelow-Sanford Carpet Co., Inc.). USP 2 480 004, Aug. 23, 1949.

The method of preparing the edge of a carpet having a backing of resilient cellular rubber which comprises weaving the carpet with the usual pairs of stuffer warps in the body of the carpet and with but one stuffer warp between two rows of pile warps adjacent to a side of the carpet, and cutting the carpet warpwise between the rows of pile warps to a depth nearly but not entirely through the resilient cellular rubber.

Process of weaving pile fabric. John H. Harding (to C. H. Masland & Sons). USP 2 477 248, July 26, 1949.



Since 1942

A NEW WORD

has been added to our glossary of technical terms

SACO-LOWELLize

Put this new word into your own dictionary of textile terminology

. . . AND HERE IS WHAT IT MEANS

SACO-LOWELLize (*verb*)

(A) To utilize floor space so as to improve the flow of production.

(B) To co-ordinate the successive steps in processing.

(C) To reduce waste, spoilage, and unnecessary handling of stock.

(D) To realize the greatest economies in operating and maintenance costs.

These four steps in SACO-LOWELLizing can mean a great deal to any mill, for SACO-LOWELLizing is a sure way to profit. An analysis of your mill, from the engineering and management viewpoint expressed in this definition, may reveal opportunities for improved methods, lower costs, and reduction in waste.

You are invited to call in a Saco-Lowell engineer to discuss this important subject. Your inquiry, directed to our nearest Sales Office, will receive prompt attention.

SACO-LOWELL

60 BATTERYMARCH STREET, BOSTON 10, MASS.

Shops at BIDDEFORD, MAINE *and* SANFORD, N. C.

SALES OFFICES: CHARLOTTE • GREENVILLE • ATLANTA

Johnston Weaving Mill, Johnston, S. C.

no detail overlooked

McCormick Spinning Mill, McCormick, S. C.
Left: Excelsior Mills, Union, S. C.

No construction detail overlooked as manufacturer and builder team to make these the finest woolen mills in the South.

Leaders in the southward migration of the woolen industry, these new Deering, Milliken mills are totally enclosed, air-conditioned and finished in glazed tile throughout. In these plants, an aggregate of approximately 500,000 square feet is devoted to spinning, weaving and finishing the famous Milliken Woolens.

Modern in every detail, these mills are typical of more than 25 successive Deering, Milliken projects built by the Daniel Construction Company.

From the spirit level and plumb bob to the giant cranes for structural steel, no detail is overlooked when the Daniel Construction Company is on the team speeding your building to prompt economical completion.

DANIEL CONSTRUCTION COMPANY

•

GREENVILLE, SOUTH CAROLINA . . . BIRMINGHAM, ALABAMA

dc

A process of weaving a pile fabric comprises inserting a plurality of solid picks and then a plurality of mispicks accompanied by beats in successive positions per cycle, raising a pile of one character with respect to height or cut and uncut condition over a wire at one of the solid picks, raising a pile of another such character over a wire at a successive position at one of the mispicks, and moving the pile projection formed over the latter wire into the same transverse row as the pile projection formed over the former wire.

Shaped fabricated article. Howard E. Shearer & John E. Van Nest (to Am. Viscose Corp.). USP 2 474 375, June 28, 1949.

Shaped articles for use as protective or decorative jackets for objects, such as drinking glasses, cups, vases, jars, etc. are claimed. The shaped articles are seamless knitted sleeves comprising courses of yarn formed from thermoplastic fibers having a comparatively low shrinkage temperature. The sleeve is adapted to simultaneously permanently assume the contours of an object, having a peripheral wall and a flat bottom end wall, due to the shrinking and stiffening of the more heat-responsive fibers by the application of heat to the sleeve while it is in place on the object with one end tucked under the bottom end wall of the object. The resultant jacket has a peripheral wall and a bottom end wall having a centrally disposed circular opening. The walls of the jacket are provided with rolled rims, and the bottom end wall of the jacket is adapted to lie flat against the bottom end wall of the object.

Shuttle drive for narrow ware looms. Elbridge R. Holmes (to Crompton & Knowles Loom Works). USP 2 478 581, Aug. 9, 1949.

In the past it has been customary to drive the rack rod by means of chains or the like connected to its ends. Due to changes in humidity and temperature the length of the rack rod alters sufficiently to interfere with correct operation of the driving chains. If the rack rod contracts the chains are too tight and if it expands the chains will be too slack. This invention provides driving means for the rack rod including a closed metallic system which will not be affected to any appreciable extent by humidity or temperature changes and fasten the rack to the system at one point, such as at one end thereof. With this construction slight changes in the length of the rack rod will not affect the rack rod driving mechanism.

Shuttle for narrow ware looms. Frederik A. Hardick. USP 2 470 981, May 24, 1949.

A shuttle for a ribbon loom having a positive weft drive comprises a body member having a semi-circular bow, which is trough-shaped in cross-section, secured to it and forming a semi-circular bobbin-receiving opening, resilient bearing members in the opening, a bobbin resiliently secured to the bearing members. The bow has a thread guide opening in each of its side walls, an entrance in the side walls connecting the thread guide openings for insertion of thread from the bobbin and means for closing the entrances.

Suede-like fabric produced. Anon. *Can. Chemistry & Process Industries 33*, 710 (Aug. 1949).

A new suede-like fabric, know as "Doe-Tex" and made by binding minute rayon particles to selected cotton bases with a special adhesive coating, has been introduced by Canadian Industries, Ltd.

Textile fabrics formed wholly or mainly from glass fiber, yarn, or threads. Hartman. Indian P. 37 376 (through *J. Sci. Ind. Research (India)*).

Textile products and methods of producing them. Carl A. Castellan (to Am. Viscose Corp.). USP 2 476 283, July 19, 1949.

Similar to USP 2 476 282, but applied to the production of fibrous products generally. (See below.)

Textile products and production thereof. Carl. A. Castellan (to Am. Viscose Corp.). USP 2 476 282, July 19, 1949.

High frequency electrostatic activation for producing fiber-bonded felts while cooling the surfaces thereof.

Velvet and velour ribbons (Smallwares No. 15). A. Thompson & Sigfrid Bick. *Brit. Rayon & Silk J. 26*, 68-9 (July, 1949).

The designs of 3 weft pile fabrics and 2 warp pile fabrics are given. The designs include cross-section sketches, and in one case, drawing-in-draft and chain draft.

What new textiles are needed. Theodore Felner, Macy's. *Rayon & Syn. Tex. 30*, 61-3 (June, 1949).

This is a discussion of what the consumer wants in textiles and lists special fabrics and special finishes which are in demand by the consumer and retailer.

Woven tubular fabric. Chas. S. Cole (to Fabric Fire Hose Co.). USP 2 475 012, July 5, 1949.

A woven tubular fabric, capable of withstanding high internal pressure without twisting, for use as fire hose or other types of hose is claimed. The fabric is formed of warp strands interwoven with successive weft rings disposed at right angles to the tube axis. Each ring comprises a plurality of circular weft coils laid side by side in the same shed and connected by a short length of weft strand that extends laterally to other similar weft rings in adjacent sheds.

Fabric applications C 6

Fabrics for glass curtains and draperies. Hazel M. Fletcher, USDA. *Am. Dyestuff Reptr. 38,* 603-7 (Aug. 22, 1949).

This is an account of investigations undertaken by the Bur. of Human Nutrition and Home Economics to study the degradation rates of materials used for glass curtains and draperies.

Heat sealed bag. Will. A. Hermanson. USP 2 475 241, July 5, 1949.

This invention provides a bag adapted to be infused with water and other liquids comprising 2 flexible, thin sheets in face-to-face contact around their peripheral surfaces and permeable to a fluid medium, one sheet having a carded heat sealing web bonded by heat thereto, the web having heat sealing fibers of spinnable staple length, the other sheet having a web of deflocculated heat sealing vinyl fibers shorter than spinnable length pressed thereto without heat, the peripheral surfaces of the sheets being bonded together by heat. A further feature of the bag is that it may be strengthened and at the same time be more readily infusible to liquids and gases by using as one face a woven fabric heat sealed to an unwoven web with large interstices ranging from 5 to 100 microns or more, the limiting upper limit being such that the particles of material contained in the bag will not readily drop out; the other face of the bag may be of paper material which has been given a wet strength treatment if liquids are to be infused.

Surgical bandage. David R. Brady (to Owens-Corning Fiberglas Corp.). USP 2 477 403, July 26, 1949.

This invention provides a bandage in the form of a fabric of interwoven fibrous glass. The weave may be of any desired type and is preferably moderately tight, and the cloth may be of any desired thickness although for ease of application relatively thin cloths of about 1 to 2 mills thickness are usually preferable. The non-absorbent nature of the bandages aids in the healing of wounds, burns and ulcerated conditions since it does not disturb or remove from the injured surface the exadate which naturally coagulates and forms the aschar.

STANDARD FINISHING D

Automatic width control and fabric guide. Raymond E. Solliday (to Wingfoot Corp.). USP 2 476 070, July 12, 1949.

An apparatus for winding fabric on a beam with means for maintaining uniform width and edge relationship of successive layers of fabric on the beam comprises a frame extending substantially transversely of the fabric as it passes to the beam. The frame is pivotally mounted for rotation about its transverse axis with a pair of mutually parallel, generally curved rolls mounted in the frame for contacting the fabric. A tiltable member on the frame co-acts with the curved rolls to shift the fabric laterally in its path to the beam. Means responsive to the lateral movement of the fabric tiltably controls the position of the tiltable member with respect to the curved rolls.

Bleaching of linen piece goods. Lauri Kiviranta. *Am. Dyestuff Reptr. 38,* 546-8 (July 25, 1949).

This is a description of the bleaching process for linen piece goods. The simplest scheme consists of the following operations: 1) boiling with lime, 2) scouring with hydrochloric acid, 3) oxidation with sodium chlorite, 4) boiling with sodium carbonate and 5) oxidation with sodium chlorite. This process is suitable for cloth woven of raw and boiled yarn, or of half-bleached yarn, but the amounts of the chemicals required vary.

Cellulose bleaching. Alfred M. Dodson (to Hercules Powder Co.). USP 2 478 379, Aug. 9, 1949.

It has been discovered that the cellulose degradation inherent in the chlorination of cellulose materials [textiles, cotton linters, etc.] suspended in acidic solution is decreased so that it is no longer excessive for the degree of bleaching action accomplished and the variations in degradation with changes in condition of chlorination are minimized. This is accomplished by a treatment in which a bleachable cellulosic material is suspended in water, containing a small amount of a nitrogen compound containing hydrogen on a nitrogen atom, and chlorinated while the system is acid in the pH range of 1.0 to 4.5 in the presence of free chlorine. Thus, the cellulose fibers may be given a chlorination much as in the past

but where considerable cellulose degradation formerly occurred, this is now greatly decreased by means of the small amount of nitrogen compound present. The nitrogen compound used is generally a compound with a basic nitrogen atom as exemplified by ammonia, substituted ammonia, and salts or chlorine compounds of ammonia or substituted ammonia.

Drier of the continuous type for textile materials. Jules V. E. M. Poncelet (to Anciens A. A. V. Charpentier et Compagnie). USP 2 479 049, Aug. 16, 1949.

This dryer is characterized essentially by a material carrier in the form of a drum which is divided into compartments or cupboards containing the material to be dried and which is rotated around a fixed central portion and by an air circulation flowing in the reverse direction from that of the displacement of the material and which is produced by ventilators occupying fixed positions between the rotary material carrier and the cover of the dryer, each ventilator blowing air onto a heating battery.

Efficient drying of wet fabrics; suitability of the open width suction dryer for fine rayons. Anon. *Silk & Rayon 23,* 134, 137 (Jan. 1949).

The operation of suction dryers in drying fine rayon fabrics is described briefly. For delicate fabrics this method is considered to be the most suitable.

Finishing nylon fabrics. Anon. *Am. Wool Cotton Reptr. 63,* 25, 27, 73 (Aug. 11, 1949).

A discussion on finishing nylon fabrics includes scouring, heat-setting, application of softening agents, application of bodying and stiffening agents, minimizing luster, crisp finishes, improving slip resistant properties, etc.

Finishing of nylon fabrics. J. E. Smith. *Am. Dyestuff Reptr. 38,* 614-7 (Aug. 22, 1949).

This discussion of the finishing of nylon fabrics was presented at the Wilmington Conference of Nylon Dyers and Finishers, sponsored by the Du-Pont Co.

How to avoid creases in processing acetate rayons. Anon. *Silk & Rayon 23,* 539, 544 (Apr. 1949).

The main factors in processing acetate rayons are: thermo-plasticity, wetting-out resistance and wet swelling. The influence of these factors in scouring, dyeing, etc. is discussed.

Improved fabric finishing. Anon. *Am. Wool Cotton Reptr. 63,* 20-1 (Aug. 11, 1949).

The Proctor over-fed pin tenter is fitted with a special housing and drying system and is used to produce superior fabrics having a rounder, fuller, and better hand. The Proctor-Mathieson open-width steamer is a unit used in connection with the continuous open-width bleaching ranges for cotton goods. Both of these machines are designed with the reduction of tension in cloth finishing processes in mind.

Machine for the wet processing of textiles. Freeman & Taylor. Indian P. 37 850 (through *J. Sci. Ind. Research (India)*).

Machine for treating knitted tubular fabric. Samuel Cohn & Jules G. Walter (to Samcoe Holding Corp.). Can. P. 447 730, Apr. 6, 1948.

A tubular fabric treating system comprises a preliminary mechanism, a dryer and driving means therefor receiving the fabric strip from the preliminary mechanism, a control actuated by the tension of the fabric between the preliminary mechanism and the dryer, connections whereby the control regulates the speed of the dryer driving means independently of the speed of the preliminary drive, a finishing mechanism and driving means therefor following the dryer and receiving the fabric strip therefrom, a control actuated by the tension of the fabric between the dryer and the finishing mechanism, and connections whereby the last-named control regulates the speed of the finishing mechanism drive independently of the speed of the preliminary and dryer drives.

Method of continuous bleaching of cotton jersey in dyebecks. Irving Teplitz. *Textile Age 13,* 7, 10, 14, 18 (Aug. 1949).

A continuous method of bleaching cotton jersey in 5 dyebecks set up in a row consists of passing the goods from one dyebeck to another after a processing period of 30 to 45 minutes. Dyebeck one is for the caustic boil; dyebeck 2 is for the hot wash; dyebeck 3 is for the hypochlorite bleach; dyebeck 4 is for the hot wash; and dyebeck 5 is for the antichlor. Savings in steam, water, and chemicals are results of this method for intermediate poundage of cotton jersey. For large and substantial poundage the kier and continuous range give greater savings.

Method of sizing or finishing textile materials, yarns and fabrics and the finishing composition therefor. Monsanto Chemical Co. Indian P. 36 514 (through *J. Sci. Ind. Research (India)*).

Method of sizing or finishing textile materials, fabrics or yarns, and the improved materials, fabrics, or yarns resulting therefrom, and the finishing composition therefor. Monsanto Chemical Co. Indian P. 36 515 (through *J. Sci. Ind. Research (India)*).

Methods of sizing or finishing textile materials or yarns and the improved textile materials, fabrics, or yarns resulting therefrom, and the finishing composition for use in said method. Monsanto Chemical Co. Indian P. 36 513 (through *J. Sci. Ind. Research (India)*).

Modern heat transfer principles improve drying. C. Barton Albright. *Textile World 99*, 112-3, 186, 188 (July, 1949).

A completely redesigned and rebuilt dryer incorporating every modern feature of high-efficiency heat transfer and control cut time for drying and resin curing to less than half the time formerly use for drying alone. Costs per pound of water evaporated were cut to about 0.190 cents. Details of the principles used are not described; but some of the fundamental aspects are touched on, such as causing air to pass entirely through the goods at very high velocity and with as much turbulence as possible.

New automatic cloth guider for drying machines. Anon. *Silk & Rayon 23*, 934 (July, 1949).

A new guider for drying and finishing machines consists of a guiding head fixed at the entrance of the machine, through and over which the cloth passes on its way to the chains and the necessary apparatus for moving the head so that the pins on the chain register with the selvedge of the cloth. The control mechanism consists of 2 solenoids which are activated by a small feeler switch which responds to changes in the width of the cloth.

Nonionic compounds, their employment in the textile industry. J. P. Sisley (tr. by P. J. Wood). *Am. Dyestuff Reptr. 38*, 513-21 (July 11, 1949).

Nonionic compounds are used in the textile industry for the following purposes: 1) wetting agents, 2) washing (wool scouring), 3) emulsifyin agents (oiling of wool), 4) acid fulling of cloth, 5) dyeing assistants (leveling), 6) removal of colors from the fiber, 7) improving the fastness of dyeings, and 8) softening agents. These uses are discussed briefly. A classified index of nonionic compounds is given showing trade names, types, uses and manufacturers. A list of manufacturers is also given.

Process and apparatus for tensionless handling of running lengths of materials. Harold H. Belcher (to Rodney Hunt Machine Co.). USP 2 474 717, June 28, 1949.

Apparatus for handling a moving length of material comprises a plurality of spaced freely rotatable upper rollers and a plurality of spaced lower rollers spaced from the upper rollers. The material passes over each upper roller and under each lower roller in succession. Means are provided for withdrawing the material from the apparatus, and means are provided for driving the lower rollers at a speed such that the surface speed of the lower rollers is greater than the surface speed of the withdrawing means by an amount exceeding the maximum variation in speed of the material resulting from change of length of the material.

Processing cellulosic materials for improvement in handle, feel, tensile strength, appearance and affinity for dyes. Nabar, Padmanabhan & Secretary, Indian Central Cotton Committee. Indian P. 37 369 (through *J. Sci. Ind. Research (India)*).

Setting process. J. L. Stoves. *Fibres 10*, 259-61 (July, 1949).

Three physical methods (crabbing, blowing, and patting) for treating woven woolen fabrics to prevent excessive contraction during subsequent wet treatments are described. The practical means of carrying out these processes and the theory of setting processes in general are also discussed.

Treating fabrics. S. H. Williams. Australian P. 133 270, Nov. 21, 1945.

Dyeing, bleaching or other fluid treatment of a continuous web of fabric is more rapidly and uniformly effected by drawing it through the fluid in spaces defined by walls parallel with and close to the web and maintaining a speed of travel (e.g., 100 yards per min.) of the web which produces cyclonic currents in the fluid to project it into the fabric by impact. Apparatus for carrying out the process comprises a tank, a series of vertical transverse partitions defining wells therein, baffles defining (with the partition walls) a narrow tortuous course of travel for a web, and upper and lower rollers; the wells are arranged in groups in which each well is raised above the preceding one, and means (such as an outlet in communication with the inlet) return fluid from the last well of a group to the fabric entry point in the first well.

Treatment of fabrics. S. H. Williams. Australian

Acceptance

When mills who are customers of long standing continue, year in and year out, to reorder new equipment from *one* source — that's "acceptance".

When other mills, in their expanding programs or in developing new processes, investigate all sources for their manufacturing needs and then buy from that *same* source — that's "acceptance".

When that source or manufacturer, through constant research, revises and improves his product to keep pace with the demands of modern mill practice, he has *earned* that "acceptance".

Repeat orders for WHITIN textile machinery received from textile centers in all parts of this country and abroad testify to the acceptance of Whitin equipment by the industry as a whole.

There's no doubt about it — acceptance is the positive proof of performance! That's why we feel justified in saying that an installation of Whitin equipment, whether for cotton, wool, worsted, rayon or synthetic fibres is a timely investment — an investment having definite beneficial effects on the three major factors in today's competitive struggle . . . *quality*, *quantity* and *lower costs*.

Whitin MACHINE WORKS

WHITINSVILLE, MASSACHUSETTS
CHARLOTTE, N. C. • ATLANTA, GA.

TESTED IS TRUSTED

MR. BOSS WEAVER here's how you can *predetermine* your elasticity for better weaving.

Uniform elasticity in spun yarns for correct weaving shed can be predtermined by the Scott IP-2 Incline-plane Tester, resulting in fewer stoppages in the weave room. Tests are graphically recorded on "picturized" charts hich give permanent production control records.

FOR 50 YEARS *SCOTT TESTERS HAVE BEEN A MAINSTAY OF THE TEXTILE INDUSTRY FOR QUALITY CONTROL THROUGHOUT THE MILL. MODELS ARE AVAILABLE FOR TENSILE TESTS ON SINGLE FIBRE, SINGLE END, SKEIN, CORDS, TWINE AND FABRIC UP TO 2000 LBS., ALSO FOR HYSTERESIS, BURST, CREPEAGE, TWIST, FLEXING, ETC.

*Registered Trademark

Request Catalog 49.

SCOTT TESTERS, INC.

94 BLACKSTONE ST. PROVIDENCE, R. I.

Standard of the World

BARNES SERVICE

Consulting Engineers

TO THE TEXTILE INDUSTRY FOR OVER 1/3 CENTURY

Surveys--Reorganizations--New Plant Developments for Cotton, Wool, and Synthetic Yarn and Cloth Processing, Bleaching, Dyeing, Printing and Finishing.

★ Plant Appraisals ★ Mechanical and Operating Surveys — New Methods ★ Scheduling and Planning ★ Work Load Studies, Job Analysis and Evaluation, with Incentive Plans ★ Standard Cost Installations ★ Cost Control Methods.

Labormeter
Burden-meter
Waste-meter

SERVING THE TEXTILE INDUSTRY OF THE WORLD — BT INC — CENTURY

BARNES TEXTILE ASSOCIATES, Inc.
10 HIGH STREET, BOSTON 10, MASS.
318 MONTGOMERY BLDG., SPARTANBURG, S. C.

P. 133 269, Nov. 21, 1945.

More uniform and economical dyeing, bleaching or other liquid treatment is effected by drawing a continuous web of fabric downwardly and upwardly through a series of narrow surrounding passageways, while flowing a stream of liquid in the same direction, the rates of web travel and liquid flow and the quantity of liquid being so controlled that the stream has a depth sufficient to cover the fabric at the highest elevation of the web. Apparatus for effecting the process comprises a tank, with a series of partitions defining wells therein and arranged in groups, each final partition forming a dam; transverse rollers are mounted over each partition and means such as baffles, festooning the web in each well and over each roller in succession, arranged in the wells, define a narrow passage through which the web and liquid travel; a liquid inlet and outlet are provided.

Viscose rayon processing. Rene Bouvet, Am. Viscose Corp. *Am. Wool Cotton Reptr. 63,* 53, 55 (Aug. 11, 1949).

Rayon viscose is a highly hygroscopic fiber which absorbs moisture rapidly, but is most reluctant to liberate it. Excess moisture in rayon viscose affects the tensile strength and dimensional stability. It is reported that the ideal condition for handling viscose filaments is within 55% and 60% relative humidity. The best methods for counteracting tensile strength loss in processing are discussed.

Wetting agents. Robt. L. Smith, Duncan J. Crowley & Pharez G. Waldo (to Socony-Vacuum Oil Co., Inc.). USP 2 463 497, Mar. 1, 1949.

It has been discovered that the wetting time in the Draves test can be controlled and reduced to instantaneous at concentrations of 0.5% by weight of wetting agent and less by controlling the number and molecular weight of the alkyl substituents of the aromatic sulfonic acid, the alkali metal salt of which is the preferred form of the wetting agent. The present invention provides a wetting agent comprising a mixture of mono- and dialkyl aryl alkali metal sulfonates having a wetting time in the Draves test at 0.5% concentration by weight in excess of 10 seconds and sufficient of at least 1 polyalkylated aryl alkali metal sulfonate selected from the group consisting of di- and trialkyl aryl alkali metal sulfonates having not less than 9 and not more than about 27 alkyl C atoms to provide a wetting agent having a wetting time in the Draves test at 0.5% of not more than about 10 seconds.

Wool jersey finishing calls for special techniques. Irving Teplitz. *Textile World 99,* 133, 196, 198, 200, 202 (July, 1949).

Plants equipped to handle rayon or cotton knitted fabrics are not necessarily equipped for finishing wool jersey. Differences in percentages of white fabrics and volume requirements are part of the reason for this. The procedure for dyeing using acid dyes and Glauber's salts, bleaching in an alkaline bath with hydrogen peroxide, pH control, fulling and control of weight and decating of wool knitted fabrics are discussed in some detail.

DYEING AND PRINTING E

Dyeing

Application of fast colors to mercerized cotton hosiery. C. H. Asbury. *Tech. Bull. (DuPont) 5,* 61-6 (June, 1949).

See TTD: *6,* 470.

Application of vat dyes by pad and continuous unit methods. Frederick A. Alter. *Textile Age 13,* 42, 44-7 (Aug. 1949).

The straight pad method of dyeing vat colors is used to produce tints and the lighter medium shades on the sheerer materials and can be run at speeds up to 175 yards per min. with a well penetrated and evenly dyed result. The continuous dye range will dye vat colors in light, medium, and dark shades of uniform quality on large lots of all types of textiles. The units used in these 2 methods of dyeing, the method of oxidizing dyes, and the operation of the units are described.

Clean white effects attainable in discharge printing. T. N. Patrick. *Textile World 99,* 137, 139, 184 (July, 1949).

The difficulties in the production of white and color-discharge styles on dyed grounds in textile printing are not insurmountable. The use of diazotized and developed direct dyes, the effect of sunlight on freshly diazotized goods, the influence of steam on the producing substances contained in the print paste, "marking off", "facing" prevention by pre-treatment of dyed grounds, the importance of highly polished or chromium plated rolls, the amount of reducing agent required, and steaming of the goods are discussed.

Comparison of common salt vs. Glauber's salt for evaluating fast-to-light direct colors. Anon. *Tech. Bull. (DuPont) 5,* 79-81 (June, 1949).

Most of the Glauber's salt dyeings showed less exhaust than the common salt dyeings after 5

minutes; but after 60 minutes the differences were usually negligible. The colors varied widely in their exhaust rates and also in the amount of dye remaining in the bath after 60 minutes.

Direct dye selection. Jackson A. Woodruff. Am. Viscose Corp. *Am. Dyestuff Reptr. 38,* 624-6 (Aug. 22, 1949).

Approximately two years ago, a method of direct dye classification was commenced at the Dyeing and Finishing Division's Laboratory in the American Viscose Corp. The primary objective was to provide data for aid in viscose rayon cake dyeing by using Whittaker's classification grouping on U. S. dyes. The groupings of the dyes were made on the basis of apparent diffusion penetration of direct dyes through a solid block of water swollen viscose and on the rates of exhaustion of single dyes, with and without salt present, in viscose staple fabric dyeings. The actual details of the method of testing, classification and definition of A, B, and C dyes, and a list of approximately 175 dyes so tested were given in the October 18, 1948, issue of the *American Dyestuff Reporter.* (See TTD: *6,* 135.) Work has been continued in this laboratory on the application of combinations of dyes selected for predicted compatability in dyeing. Much of the application dyeing has been done on a single cake machine, and the results so far have been somewhat better than ¾ successful in prediction.

Dye resist process for nylon. Anon. *Tech. Bull. (DuPont) 5,* 50-60 (June, 1949).

Bright nylon yarn, either undyed or dyed with acid or direct colors, has been successfully resisted for use as an effect thread in woolen and worsted fabrics. This was achieved by the tannic acid process of resisting nylon which was improved by substantially eliminating dissolved iron from the treating liquor and shortening considerably the time of treatment with tannic acid, tartar emetic and tin crystals, respectively. Both undyed and dyed nylon were treated by this modified tannic acid resist process and also by the regular tannic acid resist process. The various treated nylon yarns were compared for resistance to cross-dyeing with several acid, direct and chrome colors.

Dyeing broad-woven nylon. S. G. Turnbull, Jr., E. I. du Pont de Nemours & Co. *Am. Wool Cotton Reptr. 63,* 21, 23, 72 (Aug. 11, 1949).

The dyeing of broad-woven nylon is discussed with some details given of preparing nylon for dyeing (scouring, bleaching, etc.), dyes used in

dyeing, light fastness on nylon of dyes, etc.

Dyeing of nylon fabrics with insoluble acetate dyes and a subsequent steaming step. Cyril M. Croft (to Celanese Corp. of Am.). USP 2 474 890, July 5, 1949.

A process for the production of dyed nylon materials comprises dyeing the material with a direct dyeing dye which is relatively insoluble in water and which is applied in the form of aqueous dispersions. The dyed material is then subjected to steaming for 3 to 7 minutes at an elevated temperature of 225° to 235° and at a pressure of 4 to 8 pounds per sq. in.

Dyeing of wool. Edgar I. Noble. Can. P. 447 654, Apr. 6, 1948.

In the dyeing of wool with acid, chrome or metallized dyestuffs which during the early part of the dyeing require a weakly acid bath and during the latter part of the dyeing require a relatively strong acid dyebath to exhaust the dye onto the wool, the use of orthophosphoric acid as the sole acidifying agent, the pH of the dyebath being such that during the early part of the dyeing at least one hydrogen ion of the phosphoric acid is completely neutralized and during the latter part of the dyeing the first hydrogen ion is only partially neutralized.

High temperature dyeing. Robt. D. Robinson, Bachmann-Uxbridge Worsted Corp. *Am. Wool Cotton Reptr. 63,* 35, 67 (Aug. 11, 1949).

A discussion is given of the experiments in the past 10 years that led to the Uxbridge 72-inch continuous high temperature dyeing plant design. This equipment consists of pad tank and pad rolls, set of seal rolls, a pressure chamber, developing bath, seal rolls, and a panel board which controls speed, temperature, etc. Better penetration and greater speeds in dyeing are accomplished by high temperature methods.

Instrumentation in dyeing. Edw. W. Rhael, Sandoz Chemical Works, Inc. *Am. Wool Cotton Reptr. 63,* 17, 73 (Aug. 11, 1949).

The use of spectrophotometric instruments in dyeing will increase the interest in the fundamental principles of color. These instruments are discussed as to their possible use in the future.

Metals in tippy dyeing. Henry E. Millson, Am. Cyanamid Co. *Am. Wool Cotton Reptr. 63,* 14, 17 (May 26, 1949).

In a study of tippy wool dyeing the reasons for color changes in the preferential chromation of

dye in wool fibers are discussed. It is reported that adverse tippy effects caused by the presence of metals in the dye bath can be, in general, reduced or eliminated by leveling agents such as Calcomet Salt L. (See also TTD: *6*, 567).

"Thermosol" process for the coloration of Fiber V, Orlon acrylic fiber and nylon. Anon. *Tech. Bull. (DuPont) 5*, 82-103 (June, 1949).

This discussion of the "Thermosol" (heat-soluble) process for dyeing Fiber V, Orlon and nylon, is a report on progress in this field. Although promising results have been obtained, the data given are intended only as a basis for development work by the individual mill. The Thermosol process consists of applying a selected dye solution or dispersion to the synthetic fiber, usually by padding or printing, then drying and heating to a relatively high temperature for a short time. Under these conditions the color appears to dissolve in the fiber, producing a dyeing which is fast to washing and crocking. The temperature of fixation depends on the fiber and the dye being applied, but usually lies in the range of 360°F. to 480°F. with contact times of 5 to 60 seconds. The optimum conditions for a particular color and fiber must be determined by laboratory experiment. After heating, the fabric is soaped to remove any unfixed surface color.

Vat dyeing process. Carl H. Brubaker (to The Standard Bleachery & Printing Co.). Can. P. 446 785, Feb. 17, 1948.

An improvement in the process of dyeing with vat dyes comprises providing a vat dye bath containing a vat dye, a reducing agent in a quantity not exceeding that required to reduce the dye to its soluble form and produce a completely dye-reduced bath and a caustic alkali in sufficient quantity to dissolve all the reduced soluble dye, wetting material to be dyed with the dye bath, and so subjecting the wetted material at and between iron positive and nickel negative electrodes spaced apart a distance greater than the thickness of the material to the action of a direct electric current at a voltage lying between 6 and 120 volts that it constitutes a substantially long path for the electric current to effect substantially complete penetration of the material with the dye and effective dyeing thereof, and subsequently developing the dye.

Printing

Printing of nylon piece goods. A. K. Saville, E. I. duPont de Nemours & Co. *Am. Wool Cotton Reptr. 63*, 15-16 (Aug. 11, 1949).

Although nylon possesses affinity for all classes of dyes when applied under proper conditions, it has been found that acetate, vat, acid, and direct dyes give the best results in printing nylon. A discussion of the application of these dyes to nylon is given.

Process for printing with sulfuric esters of leuco vat dyestuffs. Wm. B. Hardy & Elizabeth M. Hardy (to Am. Cyanamid Co.). USP 2 474 785, June 28, 1949.

A process for printing fibers and fabrics with difficultly oxidizable sulfuric ester salts of leuco vat dyes of the indigoid type comprises printing the ester salts with dichromates and in the presence of an effective amount of an aniline sulfonic acid radical, substituted by at least one aliphatic hydrocarbon radical containing not more than one double bond. The print is developed with acid vapors.

Process for producing a textile fabric having the 2 sides thereof in differing colors. Albert Mellor & Ralph J. Mann (to Celanese Corp. of Am.). USP 2 475 672, July 12, 1949.

In a process for the production of a textile fabric having the 2 sides thereof colored in different colors by a dyeing process, the steps which comprise substantially completely impregnating a textile fabric comprising fibers of an organic acid ester of cellulose with a solid water-insoluble fatty acid containing at least 12 C atoms, applying to the one side of the fabric a solution of a saponifying agent so thickened that it fails to penetrate through to the opposite side, permitting the saponifying agent to saponify the organic acid ester of cellulose fibers on the side to which it is applied and thereafter dyeing the fabric with a dye having an affinity for the organic acid ester of cellulose fibers but not in the saponified fibers and with a dye having an affinity for the saponified fibers but not for the organic acid ester of cellulose fibers.

Process of treating textile materials. Harley Y. Jennings (to Copeman Lab. Co.). Can. P. 447 403, Mar. 23, 1948.

A process of pad dyeing to produce a solid color effect comprises subjecting textile materials having discrete fibers to an emulsion comprising fine droplets of organic solvent uniformly dispersed in an aqueous medium, the individual droplets having dissolved therein a resinous substance containing coloring matter, and then drying the textile material to form a product comprising textile

material having coloring matter bonded to its discrete fibers by a substantially continuous film of resinous substance.

Rate of dyeing as an aid to the classification of direct dyes on viscose rayon. W. Armfield, Courtaulds Ltd. *J. Soc. Dyers Colourists 65,* 352-9 (July, 1949).

Rate-of-dyeing experiments are described with direct dyes on viscose rayon yarn. Sodium chloride is added gradually at a constant rate to the dye liquors during the entire 2 hr. dyeing. This method of salting gives comparable curves (dye absorption vs. time of dyeing) to those obtained on dyeings carried out on a works basis. These experiments show that dyes cannot be classed satisfactorily by rate of dyeing alone, but once dyes of this type have been separated into classes according to their leveling and salting behavior, rate of dyeing measurements provide a further means of refinement. Eighteen Class B dyes tested in this manner showed that the rate-of-dyeing measurements provide a means of predicting the compatability of the dyes in the admixture.

Resisting of effect threads for vat-dyed cotton half-hose. Anon. *Tech. Bull. (DuPont) 5,* 67-78 (June, 1949).

Nylon yarns dyed with acid, chrome or vat dyes may be resisted sufficiently so that they can be used as colored effect threads in men's vat-dyed cotton half-hose dyed with selected dyes in all popular shades except navy. The resist treatment is carried out by working the dyed nylon yarn for one hour at 190-200°F. with 10% Du Pont Mordant BS and 10% acetic acid (28%), based on the weight of the fiber. Both filament and spun nylon yarns of various counts were treated, both before and after dyeing with acid, chrome and vat colors, with Du Pont Mordants BS and DP. The various resisted yarns were tested in cross-dyeings with the complete range of vat colors both singly and in combination.

Roller printing troubles. "Technicus". *Brit. Rayon & Silk J. 26,* 64-6 (July, 1949).

Some of the ways in which cloth can be damaged when printed by engraved copper rollers are discussed in some detail and the cure for each cause given. Type of damage covered includes "snibs" or "snappers", seam trouble, scums, bad ends of pieces, crooked ends, and various types of soiling.

SPECIAL FINISHING F

Antifungus wrapper and method of pest control.

Lawrence H. Flett (to Allied Chem. & Dye Corp.). USP 2 480 010, Aug. 23, 1949.

It has been found that dialkyl esters of α,β-dichlorosuccinic acid in which the alkyl groups contain not over 4 C atoms are effective agents for control of fungi and other organisms. The antimycotic action of these esters may be realized by placing the organic material to be protected in contact with, or closely adjacent to, the esters at room temperature so that the vapors which are slowly generated at such temperatures come in contact with the material; or the organic material may be exposed to hot gases containing vapors of one of the above esters in a suitable enclosure. The esters may also be employed for control of fungi on organic material infested therewith by application to the host in any conventional manner, as in the form of a dust, solution or dispersion. In the preferred embodiment of the invention, wrapping material to be used for wrapping organic material such as foodstuffs. textiles and the like subject to fungus attack, is impregnated or coated with a composition containing one of the above described esters or a mixture thereof, preferably a lower dialkyl dichlorosuccinate. The wrapping material treated may be any suitable wrapper such, for example, as the various paper wrappers, waxed or other moisture-resistant paper, glassine, cellophane, etc.

Cellulose derivative compositions. Arthur E. Young & Elmer K. Stilbert (to Dow Chemical Co.). USP 2 469 348, May 3, 1949.

A composition suitable for coating light-weight fabrics to provide water-repellent finishes without materially changing the drape and hand of the fabric consists of an alkyd resin product of the reaction between a polyhydric alcohol containing at least 3 hydroxyl groups and a straight-chain dicarboxylic aliphatic acid containing at least 4 C atoms; a cellulose derivative which is soluble in organic solvents, either a cellulose ester or cellulose ether; a thermosetting resin which is soluble in organic solvents; and a solvent plasticizer for the cellulose derivative. The non-volatile ingredients are dissolved in a volatile organic solvent to provide a suitable coating solution.

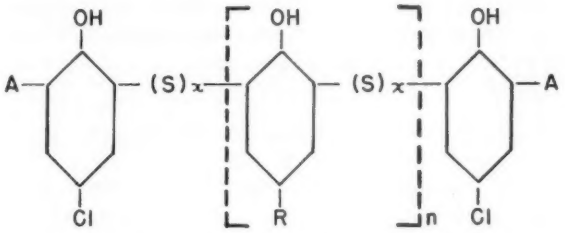
Coated cotton fabric. Alfred J. Jennings (to E. I. duPont de Nemours & Co.). USP 2 477 336, July 26, 1949.

A coated cotton fabric which is capable of withstanding steam pressure up to 70 psi comprises a woven cotton fabric base and a tough durable

adherent ZnO-free coating of natural rubber, polymerized chloroprene, copolymers of isobutylene and a conjugated diolefin, of butadiene and vinyl benzene, and of butadiene and acrylonitrile as well as a vulcanizing agent and a curing and protective material.

Divalent metal salts of halogen substituted phenylol sulfides. Elmer W. Cook & Philip H. Moss (to Am. Cyanamid Co.). USP 2 459 063, Jan. 11, 1949.

The growth of fungi on textiles, leather, etc. may be prevented by impregnating the materials with compounds containing a salt which has the formula:



with a divalent metal of the group consisting of zinc, copper, calcium, barium, mercury, iron, and magnesium. A is a member of the group consisting of hydrogen and halogen; R is a member of the group consisting of halogen and lower alkyl radicals; x is a whole number not greater than 2; and n is a whole number not greater than 8.

Fire-retardant coatings for fabric-covered aircraft. S. G. Weissberg & G. M. Kline, Natl. Bur. of Standards & H. L. Hansberry, Civil Aeronautics Adm. Expt. Station. *Ind. Eng. Chemistry 41*, 1742-49 (Aug. 1949).

Wing fabric panels with fire-retardant coatings applied over the conventional cellulose nitrate or acetate-butyrate "dopes" resisted a flaming gasoline spray in wind tunnel tests for up to 12 seconds before total destruction, as compared to 2 seconds for nitrate and 6 for acetate-butyrate dopes alone. Coatings recommended for further development on the basis of fire-retardancy and weathering tests were based on vinyl and vinylidene chloride resins and various chlorinated rubbers, and contained retardant pigments. Boric acid-borax impregnation of the fabric decreased dope adherence, though increasing flame retardance. These tests, though specialized, may indicate promising directions for development of flame-retardant coated textiles.

Fungicidal composition comprising a phenyl mercury salt and excess lactic acid. Frank J. Sowa.

USP 2 479 275, Aug. 16, 1949.

This invention provides a method of rendering textiles resistant to the action of fungi which comprises applying to the textile an aqueous solution containing phenyl mercury lactate and lactic acid and thereafter heating the treated fabric to a temperature in the neighborhood of 125°C.

Fungicide-treated cotton fabric: outdoor exposure and laboratory tests. S. S. Block, Eng. & Ind. Expt. Station, Univ. of Florida. *Ind. Eng. Chemistry 41*, 1783-89 (Aug. 1949).

This paper presents results of 2 years of outdoor shade exposure, in Florida, of cotton fabric treated with fungicidal preservatives. Untreated 10-oz. cotton duck lost 67% of its tensile strength in one year and 93% in 2. Of the different fungicides applied to the fabric to a concentration of 1% of the dry fabric weight, only the copper and silver compounds stood up well after 2 years in the field. These held loss of tensile strength to 0-19% the first year and 12-45% the second, copper chromate and silver pentachlorophanate being most effective. With the copper group, the Cu ion, rather than the anion or the whole molecule, appeared to be the protecting agent. The mercurials and other heavy metal fungicides afforded poor protection in the second year. The phenolic group were the only purely organic fungicides that rendered the fabric appreciably resistant to microbial attack. Water-repellent treatment improved the performance of the phenolic but not the copper fungicides. Laboratory soil burial tests were, in general, in agreement with the outdoor exposure tests, with attack in one week of soil burial comparing roughly with one year of shade exposure.

Metallic oxides as barrier treatments for prevention of attack by light on cellulose. S. L. Perti, S. K. Ranganathan, T. S. Subramanian & L. R. Sud, Tech. Dev. Estab. Lab. (Stores), Kanpur (India). *Nature 163*, 877-8 (June 4, 1949).

The metals investigated were chromium, copper, iron, manganese, tin, titanium and aluminum. Three different concentrations of the metals, approximately 0.05, 0.5 and 1% on the weight of fabric, were studied. Desootie, a cotton fabric of Indian tentage, was used. The metals were deposited as their oxides on the fabric by a double-bath process involving initial treatment in a soluble salt solution and subsequent decomposition with aqueous solution of alkali. The treated fabrics and untreated control pieces were exposed

during hours of sunshine at Kanpur (lat. 26° 26'N., long. 80° 22'E.) for a total period of 2,400 hours. Samples were drawn according to a randomized plan initially and at intervals of 400 hours. Bursting-strength determinations were carried out at each sampling. The results showed that manganese (0.56 and 1.3%) on fabrics retards in a remarkable manner the course of actinic degradation; there is possibly a critical concentration of manganese above which only the protective effect is apparent.

Mildewproofing composition containing copper naphthenate and bis-(5-chloro-2-hydroxyphenyl) methane. Robt. E. Horsey (to The Givaudan Corp.). USP 2 468 068, Apr. 26, 1949.

Textiles which are normally subject to attack by fungi especially during use under hot, humid conditions can be rendered resistant to such attack by employing, as mildewproofing agents, bis-(5-chloro-2-hydroxyphenyl) methane and copper naphthenate conjointly. Among the advantages of such use of these 2 materials is the fact that much smaller amounts of bis-(5-chloro-2-hydroxyphenyl) methane need be employed conjointly with copper naphthenate to give the desired fungicidal properties than were previously employed. Thus, whereas, e.g., burial tests on cotton textiles show that the minimum effective concentrations of bis-(5-chloro-2-hydroxyphenyl) methane when employed alone is about 1% on the basis of the dry weight of the untreated fabric, the same effectiveness can be obtained with only 0.3% of bis-(5-chloro-2-hydroxyphenyl) methane and 0.1% of copper naphthenate. The invention is intended to apply to cotton, line hemp, jute, wool, casein and other textiles susceptible to fungus attack, e.g., especially for protection against those fungi which attack cellulose fibers.

Permanent finishes on viscose rayon depending on cross-bonding. W. G. Cameron & T. H. Morton. *Am. Dyestuff Reptr. 38,* 575-81 (Aug. 8, 1949).

Evidence is presented which demonstrates the existence of cross-bonds in the molecular structure of 9 modified viscose rayons. In resin treatments, e.g., the urea-formaldehyde anti-crease process, the greater part of the material is deposited between the molecules of cellulose in the amorphous regions of the fiber. The change in fiber properties, however, is due mainly to a much smaller amount of reactant actively cross-bonding adjacent molecules. The technical processes depending on cross-bonding are reviewed, and the anti-crease process is discussed.

Process of forming polyvinyl formal coatings on textiles. Jas. H. Rooney, John H. Sharphouse & Philip R. Hawtin (to Celanese Corp. of Am.). USP 2 452 152, Oct. 26, 1948.

A process for the production of a textile fabric which is resistant to penetration by mustard gas and by water comprises providing a single layer of a fabric of regenerated cellulose of high tenacity with an adherent film of polyvinyl alcohol, and treating the film with a dilute solution of formaldehyde and an inorganic acid as a catalyst in a non-solvent composition for polyvinyl alcohols and polyvinyl formals consisting of a mixture of water and a water-miscible organic liquid selected from the group which consists of acetone, dioxaen, and methylene-ethylene ether, the amount of formaldehyde being such that 20-45% of the hydroxyl groups in the polyvinyl alcohol are acetalized.

Production of rubberized fabric. Jas. W. Illingworth (to Dunlop Tire & Rubber Co.). Can. P. 445 742, Dec. 23, 1947.

A continuous process for the production of rubberized fabric from a ply of textile material comprises treating the ply of textile material with an aqueous preparation of an adhesive for rubber, advancing the so-treated textile material through an atmosphere of dry steam and calendering a layer of unvulcanized rubber composition onto the so-conditioned textile material.

Production of translucent textile material. Albert Mellor, Don. Finlayson & Al. W. Morledge-Hadfield (to Celanese Corp. of Am.). USP 2 478 974, Aug. 16, 1949.

A process for impregnating fabric with a hydrophobe film-forming material so that the fabric has a substantially uniform degree of transparency, the fabric being of regenerated cellulose filaments, comprises wetting the fabric with water and subjecting it while moist with at least 22% of its own weight of water to the action of a hydrophobe organic liquid immiscible with water.

Protection of cellulosic textile materials. Frederick J. Meyer (to Dow Chem. Co.). USP 2 480 084, Aug. 23, 1949.

This invention provides a method for protecting cellulosic textile materials against the attack of the organisms of rot and mold which includes the steps of (1) successively wetting the textile fibers and surfaces with aqueous solutions of an alkali-metal salt of 3-phenyl-salicylic acid and of an inorganic salt of copper, and (2) drying the textile.

Protection of wool against insects by Mitin FF and DDT. R. Burgess, The Geigy Co. *J. Soc. Chem. Industry 68*, 121-28 (Apr. 1949).

Of various textile insecticides, Eulan CN (I. G. Farbenindustrie) and Mitin FF (Geigy) are notable for fastness, and DDT for cheapness and effectiveness. A minute amount of Mitin-treated wool will kill moth larvae and newly-hatched carpet-beetle larvae. Older carpet-beetle larvae find it unpalatable and are repelled. DDT kills adult clothes moths slowly by contact. It rapidly destroys newly-hatched larvae, probably by contact alone, whereas death of older larvae may be due to combined contact and stomach poisoning. It repels and adversely affects half-grown larvae of carpet beetles. Both insecticides protect even soiled wool and withstood launderings well. Baled raw wool may be protected with DDT.

Stabilizing textiles against progressive shrinkage. Cluett, Peabody & Co., Inc. Indian P. 37 194 through *J. Sci. Ind. Research (India)*).

Textile material. Frank B. Hill (to Claude George Bonard). Can. P. 447 750, Apr. 6, 1948.

A process for producing shrinkage effects on textile materials having a basis of an organic derivative of cellulose comprises applying to the materials, under conditions such that the materials are free to shrink, a mixture of methylene chloride and ethylene dichloride in which the proportion of methylene chloride exceeds 50%.

Treatment of textiles with alkyl-amidoalkene orthosilicates. Ernst Zerner & Marcel Gradsztain (to Sun Chemical Corp.). USP 2 477 779, Aug. 2, 1949.

A process of improving textile materials to impart thereto water repellent properties fast to commercial cleaning methods, comprises treating the materials with a solution of an alkylamidoalkene orthosilicate, in which the alykyl group contains at least 12 and not more than 30 C atoms, and thereafter heating the treated material at a temperature within the range of approximately 70-160°C.

Use of cation active finishes. Geo. Wiseman. Ciba Co. *Textile J. Australia 24*, 314-20 (June 20, 1949).

The use of cationic softeners for obtaining desirable properties of hand and drape are discussed. These softeners are particularly adapted for use on cellulosic materials. Being cationic in nature and carrying a positive charge they are readily exhausted from solutions onto the fabric which

possess a negative change. The maximum degree of softening is achieved at pH values less than 7.

Wool shrinkage control. Jack Epelberg, Cluett, Peabody & Co., Inc. *Am. Wool Cotton Reptr. 63*, 49, 51, 68 (Aug. 11, 1949).

A review is given of the principal chlorination processes for wool shrinkage control, the advantages of each, and the manner in which frictional properties are overcome.

Wrinkle resistant cottons. L. A. Fluck, Am. Cyanamid Co. *Am. Wool Cotton Reptr. 63*, 13-14 (Aug. 11, 1949).

Some of the problems encountered in producing wrinkle resistant cottons are described and crease resistant testing is briefly discussed.

Xanthated cellulose derivative. Antonie Lilienfeld. Can. P. 448 044, Apr. 20, 1948.

A process of finishing a textile material comprises applying thereto a dispersion containing a xanthate of a deeply degraded water-insoluble derivative of a cellulosic body, in which derivative a hydroxyl hydrogen atom of the cellulose molecule is substituted by an organic radical, and which cellulose derivative, in the non-xanthated condition, has been so far degraded as to be incapable of producing a coherent film which does not disintegrate during the series of steps of coagulation, washing and drying, and which non-xanthated degraded derivative is at least partially soluble in dilute caustic alkali solution; and coagulating such degraded cellulose derivative on the textile material.

TESTING AND MEASUREMENT G

Analytical methods for a textile laboratory. Anon. *Am. Dyestuff Reptr. 38*, 622 (Aug. 22, 1949).

Note: Through the generous efforts of a committee headed by Professor Theel of the Philadelphia Textile Institute. "Analytical Methods for a Textile Laboratory" have been completely rewritten, and are now published in an attractive bound volume of 287 pages, in form similar to the older Year Books. Contents are as follows: "General Instructions; Standard Solutions; Reagents; Methods of Sampling; Methods of Analysis of Chemicals; Determination of Finishing Materials and Determination of Resins and Resin Finishes; Identification of Dyestuffs on the Fiber; Determination of Textile Fibers; Useful Tables and Calculations; Index." This book can be obtained from the Secretary, A.A.T.C.C., Lowell Textile Institute, Lowell, Mass., postpaid, for six

dollars. To members of the Association for one copy only, the price is five dollars.

Control of quality in a rayon and piece dyeing and finishing works. R. A. McFarlane & C. C. Wilcock, Courtaulds Ltd. *J. Text. Inst. (Proc.) 40*, T583-607 (July, 1949).

A comprehensive method of quality control in a rayon piece dyeing and finisishing plant is described with special reference to a vertical textile manufacturing organization. The prime objective of quality control in this case is to maintain such standard production as will enable the finished fabrics to comply with commercial requirements such as (1) counter appeal (2) satisfactory performance in actual use and (3) promotion of repeat sales. In the analysis of the problems such factors as testing of raw materials which include water, dyes, chemicals, and grey fabrics, are considered. Also taken into consideration are pilot processing, methods of control, examination of the finished fabric, testing of finished fabric, contact with sales, and the necessary research and development of dyes, the effects of light on these dyes, the structure of the cellulosic material, the application of anti-shrink and anti-crease treatments and the machinery used to weave and process the fabrics.

Cotton and viscose rayon fibres—a differential dyeing test. Anon. *Fibres 10*, 251 (July 1949).

A test described by Goldthwait, et al (*Textile World*, July, 1947) for distinguishing mature and immature cotton fibers, has been used successfully to differentiate between different deniers of viscose rayon staple, cuprammonium rayon fibers, and between steamed and non-steamed viscose rayon fibers.

Experimental technique for mill investigation of sizing and weaving. E. Bradbury & H. Hacking. *J. Text. Inst. (Proc.) 40*, P532-53 (July, 1949).

This paper describes a technique considered suitable for the investigation of the effect of sizing treatments on warp breaks in weaving in a mill. In order to avoid disrupting the usual mill routine but stlll obtain sufficient data which can be analyzed statistically the following procedures are used: (1) Planning—Emphasis is placed on the desirability of sizing to a range of percentages on the warp with each of the mixings under investigation and also on the amount of weaving which has to be done to obtain significant results from which reliable conclusions can be drawn. (2) Sizing technique—The control of the sizing

conditions and the methods of sizing are described. (3) Weaving details—The allotment of warps to looms, loom conditions and methods of counting warp breaks are discussed. (4) Reducing the data—Suggestions are given for proper tabulation of data. (5) Interpretation of results —A proper statistical technique, namely, "analysis of variance" for interpreting the data is described.

Improved technique in detergency evaluation. J. Powney & A. J. Feuell. *Research 2*, 331-4 (July, 1949).

A procedure has been developed for the laboratory evaluation of detergency in which soiled chopped fibers replace the orthodox soiled fabric test pieces. The reproducibility obtained is $\pm 5\%$ or better. Other marked advantages of the technique are described and possible extensions are indicated.

Mildew in cotton textiles. Pesi M. Mehta, Hind Mills Ltd. (Bombay). *Indian Textile J. 40*, 798-800 (June, 1949).

The effectiveness of several mildew resisting agents, their effect on the fabric, and a simplified method of testing for mildew resistance are discussed. Five mildew inhibitors, Shirlan paste, salicylic acid, phenol, zinc chloride, and beta naphthol were evaluated. Salicylic acid, phenol, and zinc chloride were found to be unsuitable as mildew inhibitors. Shirlan paste, is an effective inhibitor at temperatures below 82°F, but is ineffective at higher temperatures. Twenty-two oz. of beta naphthol per 200 lbs. of solid starch (used for sizing purposes) prevents mildew growth for an average period of 96 hrs. at temperatures ranging from 79-91°F.

New moisture determination method. Anon. *Silk & Rayon 23*, 950 (July, 1949).

The concentration of water in a liquid bears a definite relation to the humidity of air with which it is in equilibrium, at any given temperature. Utilization of this principle is made in determining the moisture in cellulose derivatives, carbon disulfide and other reagents used in the production of rayon. This system may also be used to determine the moisture permeability of membranes.

Performance standards for development fabrics. C. P. Tattersfield, Courtaulds Ltd. *J. Text. Inst. (Proc.) 40*, P653-61 (July, 1949).

The necessity of insuring satisfactory performance characteristics for development fabrics is

stressed. Some difficulties associated with laboratory estimation of behavior are discussed. The behavior of textile fabrics with reference to their resistance to light and washing are given in detail. Methods are mentioned of insuring that the performance standards are achieved and certain aspects of desirable conditions of wear trials are stipulated.

Solubility number: measure of cellulose degradation. D. A. Derrett-Smith, Linen Industry Res. Assn. *J. Text. Inst. (Proc.) 40,* P622-7 (July, 1949).

A modified method of carrying out the Solubility Number Test (solubility of modified cotton cellulose in caustic) which obviates certain practical difficulties is described. The principal modifications that have been made are: (1) the ratio of 10N-2N caustic soda solution to the weight of the sample under test was doubled; (2) the temperature at which the treatment with 10N-2N caustic is carried out was increased from 15°C to 17.5°C. Several minor modifications and refinements are also described.

Standard solutions for humidity control at 25°C. R. H. Stokes & R. A. Robinson, Yale Univ. *Ind. Eng. Chemistry 41,* 2013 (Sept. 1949). **Solutions for maintaining constant relative humidity.** D. S. Carr and B. L. Harris, John Hopkins Univ. *Ibid. 41,* 2014-5 (Sept. 1949).

These 2 papers give the vapor pressure of water over solutions of sulfuric acid, sodium hydroxide, and calcium chloride at various concentrations and temperatures, and also the vapor pressure of water over saturated solutions of a number of salts, some at several temperatures. Such solutions are useful in maintaining relative humidity constant at any desired value, as in laboratory conditioning of textiles before testing.

Statistical methods in detergency investigations. A. J. Feuell & R. E. Wagg. *Research 2,* 334-7 (July, 1949).

The statistical method of factorial experimentation has been applied to the study of the washing and suspending powers of a ternary system comprising a non-ionic detergent, sodium carbonate, and sodium carboxymethyl cellulose. An interpretation of the action of the various factors is given.

TEXTILE ANALYSIS. S. R. & E. R. Trotman. London, Chas. Griffin & Co. Ltd. 1949. Price: 28s net.

. . . In 18 chapters, comprising nearly 300 pages, the authors have successfully compressed a tremendous amount of detailed and reliable information, illustrated where required with clean-cut line diagrams or very good half-tone blocks. Chapters 1 to 10 deal with the identification and determination of textile fibers; physical tests for textile materials; determination of specific gravity and viscosity; standard volumetric solutions; analysis of organic compound; acids; indicators and their hydrogen-ion concentrations; alkalis; bleaching agents and water and effluents. Chapters 11 to 18 are concerned with analysis of fibers; oils; organic solvents; formaldehyde, tannins, "blueing agents," glycerol; starch, dextrin, glue, etc.; metallic salts; nitro-compounds, amines and phenols, and lastly, the detection and analysis of dyestuffs.—*Textile Mfr.*

Textile material specifications. G. E. Collins. *J. Text. Inst. (Proc.) 40,* P628-37 (July, 1949).

Specifications for textiles are considered from several viewpoints: 1) their value, 2) form and order and layout, and 3) content. The value of specifications lies in aiding in maintaining the quality of a manufactured article. The form recommended includes, introduction, specification demands, advice to producers, sampling and number of tests and test methods. The contents should include verifiable demands, number of demands, proper instructions, and level of demands.

Clothing and fabrics G 1

Evaluation of roll wool felts for arctic footwear. Thora M. Plitt Hardy, USDA. *Textile Research J. 19,* 427-35 (July, 1949).

Fifteen test methods employed in the evaluation of 14 commercial felts used for tongues, vamps, midsoles and insoles of cold climate military footwear are described.

Instruments and instrumentation G 2

Cloth inspection machine and uniformity meter built at ITT. Anon. *Textile Industries 113,* 90-1, 225 (June, 1949); *Textile Age 13,* 87-8 (May, 1949).

Illustrated descriptions of a new cloth inspection machine and a new uniformity meter are given. The new inspection machine provides a stationary image of continuously moving cloth and permits easier and more accurate inspection. The purpose of the new uniformity meter is to test sliver, roving, and yarns for uniformity of structure by measuring the weight of the fibers per unit length.

Conditions of temperature and humidity in the

Fade-Ometer. G. Nordhammar, Swedish Inst. for Textile Res. *Am. Dyestuff Reptr. 38,* 571-4, 593 (Aug. 8, 1949).

The temperature in the Fade-Ometer was measured by means of thermocouples connected to a recording potentiometer. It was found that the values were high compared with those likely to be encountered in practice; at the surface of the samples the temperature sometimes exceeded 100°C. The air in front of the samples was about 55°C. In the present model Fade-Ometer, model FDA-R, the relative humidity is only about 10% ; it is shown that it depends more on the humidity of the testing room than on the humidifier. By forcing all the cooling air in front of the samples, the temperature can be lowered and the RH raised.

Crease resistance testing. Ladislav Boor & Linton A. Fluck (to Amer. Cyanamid Co.). USP 2 479 303, Aug. 16, 1949.

This invention contemplates folding a standard sized sample of a material to be tested over a relatively thin and sharp horizontal supporting edge, clamping the folded material over the edge by placing thereon a spring-pressed pressure device which exerts a pre-determined pressure, leaving this device in place for a pre-determined length of time and then removing the same. The apparatus is provided with a movable protractor having an adjustable and separate arm, the base lines of the protractor and arm being movable so as to coincide with the angle at or near the apex of the folded material undergoing test, all without handling of the specimen after having been folded.

Electronic instrument for measuring weight variations in slivers, rovings, and yarns. G. N. Boyd. Ontario Research Foundation. *J. Text. Inst. (Trans.) 40,* T407-23 (July, 1949).

In contrast to the usual methods of measuring changes in diameters of roving, sliver, or yarn, an electronic device is employed for determining variations in weight. This method is non-destructive and the results obtained are referenced to a suitable short length of the test material using a recording system. The instrument used is based on the one by Mathes and Mangartz in which the change in capacity of a condenser was measured as yarn, sliver, or roving was made to pass through it. However the stability of the electronic circuit, was greatly improved and numerous changes were made electrically and mechanically to improve the validity of the results.

Improved multipurpose abrasion tester and its application for the evaluation of the wear resistance of textiles. R. G. Stoll, Quartermaster Textile Lab. *Textile Research J. 19,* 394-415 (July, 1949).

The apparatus is capable of quantitatively measuring resistance to flat-, edge-, and flex-abrasion under carefully controlled conditions, producing macro- and micro-wear patterns which are the same as those obtained in actual wear. Materials tested in the machine are abraded to an endpoint which is quantitatively defined and independent of individual judgement. Deviations in test results due to the machine are insignificant compared to the division of the samples themselves. A correlation has been found to exist between accelerated combat-wear data and results obtained on the new tester.

Measurement of cross-sectional variations in slivers. Nat'l. Physical Lab. Method. Anon. *Fibres 10,* 254-6 (July, 1949).

The device used for measuring the cross-section of slivers or roving consists of two rollers between which the sliver is fed. The positively driven lower roller has a rectangular groove into which the upper roll can press the wool. Variations in thickness as reflected by the rise and fall of the upper roll are magnified and recorded. Suitable rollers with various sizes of grooves permit the testing of various sizes of roving or sliver.

Method of mounting filamentous materials for spectroscopic examination in the infra-red. P. Holliday, Brit. Nylon Spinners Ltd. *Nature 163,* 602-3 (Apr. 16, 1949).

A mount for nylon filaments consists of 2 rectangular U's made from ⅛ in. carbon steel plate, between which is a strip of thin metal spacer foil, the plates being clamped together by means of 2 countersunk screws tightening into tapped holes in one of the plates. Preparation of a specimen is described and directions for mounting it are given.

Microscope for analysis of fine textiles. Anon. *Brit. Rayon & Silk J. 26,* 77 (July, 1949).

A new small microscope with a battery powered light and magnifications of from 15X to as high as 120X is being produced in England. The device is so made that the tube and light can be easily removed from the base for general work. The tube can also be traversed on the stand for such things as counting threads per inch.

Photo-electric wool staplemeter. H. Goot, Univ. of

N. Z., & R. E. Belin, Dominion Physical Lab. (N. Z.). *Nature 163*, 872-3 (June 4, 1949).

An experimental model of a wool staplemeter was constructed. The device consists of a light-tight box in which the specimen is placed, a light source and a lens for focussing a beam of light on the specimen. A photo-electric cell situated directly above the illuminated specimen measures the scattered light from the wool. The photo-electric cell is connected to a DC amplifier the output of which is noted on a 0-50 micro-ammeter. In a preliminary investigation of 28 wool samples the correlation coefficients between the micro-ammeter readings and the number of fibers counted proved to be statistically highly significant. A diagrammatic sketch of the device is given and preparation of the sample is described briefly.

Stress-strain-time apparatus for fiber testing. C. H. Reichardt, H. Schaevitz & J. H. Dillon. *Rev. Scientific Inst. 20*, 509-16 (July, 1949).

A stress strain apparatus for testing individual fibers is described. The apparatus employs a ring dynamometer in conjunction with a linear variable differential transformer. A constant rate of elongation apparatus is fully described and a schematic diagram of a constant rate of loading apparatus is discussed. The use of linear variable differential transformers allows simple a.c. amplifiers to be employed and thus removes many of the difficulties involved in d.c. bridge circuits. Load ranges from 50 grams to 1 gram per ten chart inches can be obtained with a sensitivity of several milligrams. By changing the size of the ring dynamometer employed, an apparatus giving the greater load ranges necessary to test yarns can be constructed.

Tensiometer. Jean J. Boulin (to Boulin Instrument Corp.). USP 2 472 142, June 7, 1949.

This invention provides a tensiometer instrument with a pistol grip and a trigger whereby the instrument may be conveniently held in one hand with the trigger cocked; the latter may be pulled by a finger so as to manipulate certain pulley means with respect to other pulley means whereby a running yarn, or the like, may be readily drafted and located therebetween so that tension of the running yarn can be measured on an indicator of the instrument.

Thermometric instrument for measuring impregnite in cloth. Geo. A. Perley (to U. S. of Am.). USP 2 477 526, July 26, 1949.

A thermometric instrument for measuring the amount of impregnite in impregnated cloth comprises a Wheatstone bridge having thermal responsive resistance elements in 2 of its alternate arms; heat conducting disc members of minimum thickness for protecting and carrying each of the thermal responsive resistance elements; supporting means for the members; and removable means fitting over the end of one of the supporting means thermally shielding the member and adapted to secure materials to the supporting means in a cooperative position above the members.

TEXTILE MILLS H

BIBLIOGRAPHY OF REPORTS ON TEXTILE MACHINERY. Compiled by Rosalie B. Joseph under the direction of Henry H. Douglas. Washington, Office of Tech. Services, Dept. of Commerce, 1949. 21 p. Price: free.

The first compilation (Jan. 1949) on textile machinery reports and abstracts that has been put out by OTS. Bibliography arranged under headings of Carding Machinery, Knitting Machinery, Spinning Machinery, and General Textile Machines. Reports listed by number, author, title, date, paging, and prices. It is a basic source for reports on German equipment and technology.

Blower reduces moisture in dyehouse. Anon. *Textile Industries 113*, 145 (Sept. 1949).

A blower unit, equipped with a steam-coil heating element and electric fans for blowing air through 3 funnel-shaped openings, is reported to control steam condensation over the dye tubs, reduce the problem of rust and mildew on the ceiling, improve ventilation, etc.

Comparison of methods for treatment of wool scouring wastes. Stuart E. Coburn. *Sewage Works J. 21*, 84-90 (Jan. 1949).

Methods of scouring wool are reviewed briefly and comparative data are given for the following methods of treating wool scouring wastes: 1) acid cracking, 2) calcium hypochlorite process, and 3) calcium chloride process. On large streams where ample dilution is available, treatment by any of the 3 methods would be satisfactory, and local conditions would be the determining factor in the selection of the method of treatment.

Cotton mill waste can be reduced. E. H. Helliwell. *Textile World 99*, 131, 133, 224 (Aug. 1949).

Realistic maximum waste standards should be set for each operation and each type of waste. The amounts of some types of waste depend on me-

chine settings and speeds rather than the operator. The waste should be carefully checked for its content of good fiber. Reworkable waste must be spread over the entire day when re-using it. The waste problems at each machine or process are discussed.

Cotton slashers and auxiliaries. Anon. *National Safety News 60,* 39, 40, 57-9 (June, 1949).

Hazards and safety precautions are covered in this data sheet on slashing. Topics covered include: general, machine guards, other mechanical precautions, steam and pressure, personal protection, housekeeping, fire prevention, operating rules, and general safe practices. (Industrial Data Sheet D-T. 8.)

Designing for lower costs. (A special staff report.) *Product Eng. 22,* 94, 127 (June, 1949).

Two instances are given of design improvements which lowered costs of parts for textile machinery. The Whitin-Schweiter automatic filling bobbin winder contains the following parts made from Presmet iron or leaded brass powders: cam shaft starting pawl, traverse cam spur gear, cam roller, stop motion push rod block, and bottom scissors thread guide bearing. Crompton and Knowles are using magnesium and occasionally aluminum extrusions and castings to replace wood in handrails, cloth rolls, back stays, picker sticks, and binders in weaving machinery. Typical of the results is an increase in loom speed from 160 to 225 picks per minute with no increase of motor load when a 23½-ft. wooden lay beam was redesigned as a magnesium extrusion.

Disposal of fluorescent lamps. Anon. *National Safety News 60,* 40, 42, 95 (Aug. 1949).

The danger of beryllium poisoning as the result of exposure to dusts of beryllium compounds, used in fluorescent lamps may be materially reduced by observing simple precautions. This data sheet (Industrial Data Sheet D-Gen. 36) covers health hazards involved in disposing of fluorescent lamps and gives suggestions for both occasional and large-scale disposal. Photographs are given of a box used for the destruction of these lamps.

Drycleaning's relation to fabric manufacture. Anon. *Am. Wool Cotton Reptr. 63,* 57, 59, 68 (Aug. 11, 1949).

It is important for textile finishers to have a knowledge of dry cleaning processes so that the user of fabrics will be assured of satisfactory cleaning results. A discusion of dry cleaning processes is presented.

Experiments on anaerobic digestion of wool scouring wastes. M. T. Singleton. *Sewage Works J. 21,* 286-93 (Mar. 1949).

A pilot plant consisting of 2 500-gal. anaerobic digestion tanks, in series, was operated for 2½ months for treatment of wool scouring wastes. The wastes carried an average of 28,000 ppm of volatile matter, including 11,000 ppm grease, and had an average B.O.D. of 10,000 ppm. In spite of difficulties encountered, including change in factory conditions, the results obtained indicated that anaerobic fermentation presents a possible practical solution to the problem of the treatment of wool scouring wastes.

Fulton study relates vision and efficiency. E. W. Howard, Fulton Bag & Cotton Mills. *Textile World 99,* 97-9, 226 (July, 1949).

Results of Fulton Bag's program of testing employee's eyes by using the OrthoRater are described. This program seems to indicate that workers with good eyesight, either naturally or by using glasses, have better efficiency, better earnings records, and fewer accidents than those with poor eyesight. In nearly all cases, poor eyesight can be corrected. Graphs and tables of the results of this company's program are given.

Half-hose dyehouse equipped for versatile operation. E. Dalton White. *Textile World 99,* 104-5, 190, 192 (July, 1949).

Spalding Knitting Mills has constructed a new dyehouse and equipped it to meet competitive conditions. It is fitted with 6 rotary and 9 paddle type machines, each individually controlled. Waste hot water is used to pre-heat cold water. A central automatic brine system is used. Pictures and sample process sheets are shown.

Industrial application of noise reduction. N. Fleming, Nat. Physical Lab., Middlesex. *J. Text. Inst. (Proc.) 40,* P608-21 (July, 1949).

For the proper design of noise reducing treatments a knowledge of the characteristics of the noise concerned is required. Accordingly, the general, physical and subjective characteristics of noise are discussed. To complete the study, measurements are made of the sound pressure level, coarsely analyzed into successive frequency bonds, one octave wide, and the loudness level. Also discussed are the general principles of noise reduction by means of sound-insulation and sound-absorption treatments. Examples of industrial application of noise reducing means are described.

Industrial engineering for the small plant. Geo.

E. Tucker, Tailladega Cotton Factory. *Textile Industries 113,* 95-110, 185, 187 (May, 1949).

The importance of industrial engineering for small plants so that they may utilize their materials, machinery, and manpower to meet the competition of large manufacturers is discussed. A working program for the small plant including organization, production control, methods improvement, time and motion study, etc., is also discussed.

Dynamic balancing of machinery. R. L. Foote, Engineered Plastics, Inc. *Textile Industries 113,* 87-9 (Sept. 1949).

Dynamic balancing of bobbins, spools, quills, beams, spindles, etc. can be a vital factor in increasing machine productivity, improving quality, and reducing maintenance and operating costs. The dynamic balancing of a thin disk, a cylinder, and bobbins are discussed.

How to clean stainless steel textile equipment. Richard E. Paret, Am. Iron & Steel Inst. *Textile Industries 113,* 96-7 (Sept. 1949).

Some suggestions, including cleaning agents, for cleaning stainless steel equipment are presented. It is noted that metal scrapers and brushes should not be used since they may roughen the surface of the equipment. Instead, stainless steel wool should be used to remove extremely hard deposits that can't be removed by any other method.

Materials handling by electric truck. Anon. *Textile Industries 113,* 109, 111 (Sept. 1949).

The use of electric-powered tractors to tow tailer trains supplies materials to maintain production in carding, spinning, and weaving departments. Maintenance and cost of operation of these tractors are discussed.

Notable development in lime and soda ash water softening. Daniel Brownlie. *Textile J. Australia 24,* 447 (July, 1949).

A new method for increasing the efficiency and decreasing the time of water softening is discussed. Under normal conditions the continuous-flow lime and soda ash softening systems require from 3-5 hrs. setting time. In the described system, a method of "seeding" plus mechanical action is used to attain rapid separation of the magnesium precipitate. Calcium carbonate and magnesium hydrate already formed in a softening plant are used for "seeding purposes" with subsequent decrease in water softening time and in improved efficiency.

Obtaining maximum V-belt life. E. A. Gahl, Allis-

Chalmers Mfg. Co. *Textile Industries 113,* 107-8 (Sept. 1949).

Proper care during installation and the breaking-in period, and careful attention during operation of V-belts will insure greater service from the belts. The importance of proper tension for V-belts is stressed.

Pilot control features modernization. John M. Gregory. *Textile World 99,* 110-1, 147 (Aug. 1949).

Rocky Mount Mills, Rocky Mount, N. C., have completed modernization of all departments including pilot room, laboratory, offices, cafeteria, and production equipment. Descriptions, including type of equipment, of most of the above departments are given. The workings and possibilities of the Shirley analyzer are discussed.

Precision conditioning achieved at Revolution Mills. Harry Schaden. *Textile World 99,* 98-9 (Aug. 1949).

A mill with insufficient space for air-conditioning equipment rooms has obtained temperatures within $\pm$ 1° and RH within $\pm$ 1.4%. This has been achieved by placing air-conditioning units in roof monitors. The set-up has proved to be very flexible. The location of units, controls, and aspirators are described generally.

Reusable steel wire baskets. Anon. *Textile Industries 113,* 98-9 (Sept. 1949).

Collapsible and reusable metal shipping containers, called "Cargotainer", are lightweight, may be filled in winder frame alleys, and can be handled by fork lift trucks. They give a savings in the cost of packing in yarn mills, in loading and unloading at the dyehouse, and in the cost of expendable materials (at Am. Thread Co., Inc.).

Method for treating sewage. Thom. J. Powers (to Dow Chemical Co.). USP 2 479 403, Aug. 16, 1949.

The aeration of sewage in the activated sludge process can be effected by means which greatly increase the utilization of the oxygen of the air as compared with the diffused-air method, without resorting to the use of mechanical agitators. According to the invention air is introduced into the liquid in the sewage treating tank by means of a water-jet injector submerged below the surface, instead of through a porous plate. In this way the air is injected into the liquid in extremely fine bubbles which are much smaller than the bubbles passing through a porous diffuser plate of the type employed in the practice of the diffused-air

method. These very fine bubbles are more effective to oxidize the sewage than the larger bubbles, due to the greater ratio of surface to volume. Thus the same degree of purification of the sewage can be attained with the consumption of a fraction of the volume of air used in the diffused-air method. At the same time sufficient agitation of the liquid is secured without the use of a mechanical agitator in the aeration tank, or any apparatus having moving parts.

Mr. Barkar's report on Japanese cotton textile industry. Useful tips to mill owners in India. B. M. Barkar. *Indian Textile J. 40,* 756-66 (June, 1949).

The technical aspects of the Japanese cotton industry are discussed. At the present time approximately 3,500,000 spindles are being operated, with 9,000,000 having been lost during the war. Detailed descriptions are given of such various operations as mixing, blowing, carding, and drawing, and provides tabular data, graphs, and drawings of various machines and layouts.

Modern equipment rejuvenates Lippitt Mill. Chas. H. Leach. *Textile World 99,* 114-6 (July, 1949).

The Lippitt Worsted Company, Woonsocket, R. I., is in the process of a thorough moderization program. They have a new chemical laboratory for raw material, in process, and finished goods testing. It is equipped with a micron projector, Fade-Ometer, Precisionaire tester, and other modern devices. The dye house has stainless steel dye kettles regulated by the Foxboro cycle log dye control system. New McGlynn Hays Bradford spinning frames have individual motor drives with variable speed controls for keeping tension constant as the rail falls and rises.

Modernized lighting boosts efficiency of hosiery plant. Geo. Ransom. *Textile Age 13,* 48-50 (Aug. 1949).

A brief outline of a series of tests made under working conditions to determine how to secure the best results with lighting (at Irvington Textile Co.) is given. The resultant lighting system includes continuous rows of fluorescent units with small adjustable incandescent spot reflectors for increased localized light intensity. The new system has increased production and quality in knitting, seaming, looping, topping, inspection, etc.

Rotary joints pay dividends. Anon. *Am. Wool Cotton Reptr. 63,* 18-19 (Aug. 11, 1949).

The use of rotary joints on vertical driers, horizontal driers, slashers, and Sanforizers is reported to eliminate leakage of water and thus spotting or staining from the water. Reduced maintenance with no oiling required is also found from using these joints. Construction of the rotary joint is described.

Scotch tapes have wide use. Anon. *Am. Wool Cotton Reptr. 63,* 12-13 (Sept. 8, 1949).

Some uses of Scotch tapes in modern textile mills are shown in photographs. Advantages of these tapes are cleanliness, speed of application, positive adhesion, smoothness of surface, and economy.

Speed a la . . . constant. Anon. *Westinghouse Engineer 9,* 154 (Sept. 1949).

A new type of regulating drive permits adjustable speed, but when set maintains speed constant to 0.1% accuracy, as is required in such operations as manufacture of synthetic textile fibers. Its basis is generation of alternating current at an adjustable frequency by a motor-generator set, whose speed is held at the desired value by a frequency bridge providing thyratron control of the generator drive motor.

Springs gets more steam by improving pulverizer. L. J. Williams. *Textile World 99,* 117 (July, 1949).

Springs Cotton Mills have rebuilt their coal pulverizer by cutting away a large part of the top ring and adding 4 coil springs to increase pressure on the top ring. These steps increased pulverization so that 50% more coal passes through a 200 mesh screen than formerly. Illustrated.

Textile machinery exhibited at Milan in 1948. *Rivista Tessile* 29-41 & 35-48 (May & June, 1948); *in Italian.* (Through *Bull. de L'Institut Textile*).

Among the various machines listed are: (1) a ring-spinning frame with mobile spindles for spinning worsted; it has 5 rows of rolls with a high draft, and the pressure rolls are of bakelite. (2) A loom for large draperies with 7 bobbins. The lay is made of metal, and is automatically stopped and returned when the weft is broken. (3) A circular or tubular loom for the rapid production of slightly elastic fabrics. It resembles the loom of Schubert and Salzer. It produces 12 Kg. (26.4 lb.) of knitted fabric in 8 hrs.

Time saving improvements shown in Swiss machines. Boyd France. *Textile World 99,* 104-5, 109 (Aug. 1949).

Among the developments in Swiss textile machinery shown at the Basle Fair were: 1) An improved ring spinning machine, by J. J. Rieter & Co., incorporating the Pneumafil vacuum system and a system of applying pressure to the rolls through springs and other improvements. 2) An automatic electronic integrator developed by Zellweger for use with its yarn-evenness tester. This device determines the value of the average irregularities and shows this value on a meter. 3) In addition several new circular knitting machines, drawing frames, and looms are described briefly.

Transport. Frederick F. Sutherland & Wm. T. Stearn (to Celanese Corp. of Am.). USP ? 474 337, June 28, 1949.

According to this invention, there is provided a box-like framework including vertical standards supported thereby. Two banks of horizontally extending panels are pivotally supported on the standards at a point off the horizontal center-line of the panels, each of the panels carrying a plurality of supports for cones of yarn suitably spaced from each other. When the transport is arranged to hold the cones of yarn, the panels are pitched so that the faces thereof are at an angle of about 30° to the vertical where the panels are held by suitable means, as well as the off-balance mounting of the panels and the weight of the cones of yarn holding the panels in this position. To employ the transport as a fabric container, the panels are rotated towards each other, causing the cone supports to be integrated between the opposed banks of panels, presenting the underside of the panels which are smooth and flat towards the outside of the transport. The panels in this position form a substantially unbroken wall. For shipment, the bolts of fabric are placed between the walls formed by the panels and the outer frame brace of the transport.

Unique carousel cuts waste-handling cost. C. Mallard Bowden. *Textile World 99*, 100-3 (July, 1949).

Waste from 3 units of the Gastonia Combed Yarn Corp. are carried by vacuum to a central waste house equipped with a turntable that has 24 bins, each for a different kind of waste. Waste is collected in one of 2 tanks, shoved by chute to the proper bin, then out of the bin at a lower level to a baling press. Substantial savings resulted from this installation of new type equipment. Pictures and a diagrammatic drawing are included.

Variable speed transmission for textile drives. Anon. *Silk & Rayon 23*, 952-4 (July, 1949).

Two pairs of expanding pulleys of the opposed conical disc type are mounted, one on a constant speed shaft and the other on a variable speed shaft. Power is transmitted from one shaft to the other by a special chain which rides in the vee formed by the opposed discs. The speed at which the driven shaft runs depends on the distance separating the discs. Variable speed transmission prevents production stoppages and shocks to power units. Any speed is instantly available with positive accuracy and control without stopping the machine.

Waste treatment problems in wool textile industry. A Staff Report. *Sewage Works Eng. 20*, 340-1 (July, 1949).

This is an account of discussions of the New England Sewage Works Assn. at a meeting held May 25 at Bristol, Conn. Subjects included of textile interest were: disposal of woolen dye wastes, use of lime in digestion compartment of Imhoff tanks and unheated digesters, and acid digestion of starch wastes from a textile bleachery.

CHEMISTRY AND PHYSICS OF TEXTILE MATERIALS I

Alkaline scouring of dry spun flax yarns; effect upon physical properties of yarn and fabric. H. L. Parsons, Law and Bonar Ltd. *J. Text. Inst. (Trans.) 40*, T424-44 (July, 1949).

Various dry spun flax yarns were spun to such counts (grists) that after boiling to the required loss in weight the final counts were 4¾ lb/spyndle in the warp and 10 lb/spyndle in the filling. Three types of flax were used in this experiment, namely, retted tow, retted line, and unretted (natural) line. The boiling range covered residual alkali solubility numbers of grey, 15%, 10%, 5% and 2%. The warps and fillings were then woven into 15 fabrics of the same construction and finished identically. Both caustic soda, and soda ash were used to achieve the desired weight losses. The results obtained were as follows: 1) for any one flax fiber mix, as grey yarn count increases, intrinsic yarn strength increases; 2) alkaline scouring of dry retted flax tow yarns increases conditioned tensile strength; retted flax line yarns are unaffected and natural flax line yarns lose strength; 3) in the unboiled states, line yarns are stronger than tows; 4) the greater the chemical purity of the yarns, the greater the intrinsic yarn strength; 5) natural flax line yarns

are more irregular in strength than the others; 6) fiber strength is reduced slightly by scouring while elongation increases; 7) as severity of scouring increases the average fabric tensile strength increases; 8) fabric tear strength is insensitive to chemical purity of retted tow fibers.

Cellulose-water relations: a selected bibliography with special reference to swelling of cotton and to its utilization in water-resistant fabrics. Comp. by Mary L. Rollins, Hazel H. Fort & Dorothy B. Skau. Library List No. 44, U. S. Dept. of Agriculture Library, Mar. 1949.

The present bibliography . . . [contains 523] selected references on the swelling of cotton and other fibers, supplemented by references to methods applicable in estimating or measuring this swelling. There are also included references on such subjects as the amounts of moisture absorbed from atmospheres of different relative humidities; the swelling produced; the mechanism of the absorption of water by cellulose, the application of fiber swelling in fabrics; and some of the more important methods of measuring water repellency.—*Introduction.*

Change in crystallinity upon heterogeneous acid hydrolysis of cellulose fibers. P. H. Hermans & A. Weidinger. *J. of Polymer Sci. 4,* 317-322 (1949).

The recently developed x-ray method of crystallinity determination is applied to products of heterogeneous acid hydrolysis of cellulose fibers. Upon treatment of viscose rayon fibers with boiling 2.5N sulfuric acid, the crystalline fraction is increased from 39 to 49%, within half an hour, and remains constant upon prolonged treatment. Ramie does not show any change in percentage crystallinity when subjected to the same treatment. Its crystalline fraction is, however, transformed into cellulose IV. The observed changes in moisture regain of the hydrolyzed products are in line with the x-ray results.

Coir fibre-structure & identification of damage. S. R. Sengupta, B. B. L. Saxena & A. N. Mukerjee, Tech. Dev. Estab. Lab. (Stores), Kanpur. *J. Sci. & Ind. Res. (India) 8B,* 61-5 (Mar. 1949).

A procedure for distinguishing different types of chemical and biological deterioration of coir fiber is described.

Effect of non-ionic detergent on the detergency of alkylaryl sulfonates and soap in hard water.

G. E. Barker, Atlas Powder Co. *J. Amer. Oil Chemists Soc. 26,* 304-7 (June, 1949).

A non-ionic detergent, Renex, has been shown to improve markedly the detergency of alkylaryl sulfonates in the washing of synthetically soiled cotton. This improvement was found to exist also when the alkylaryl sulfonates were built with CMC, salts, and alkalies.

Effect of temperature on creep of two laminates; as interpreted by the hyperbolic-sine law and activation energy theory. W. N. Findley, C. H. Adams & W. J. Worley. *Modern Plastics 26,* 99-101, 103, 150, 155, 157, 159-60, 163-4, 167 (June, 1949).

Creep tests of a canvas laminate and a rayon laminate at temperatures of 42.5, 77, and 128.4°F. and approximately 50% RH are reported. Specimens were tested at several different stresses for each of the three tempratures. It was observed that the canvas laminate was inferior in creep resistance to the rayon laminate at all temperatures tested, and the rate of creep of the canvas laminate increased much more rapidly with increasing temperature than the rate of creep of the rayon laminate. The applicability of the hyperbolic sine law for creep rate versus stress and the activation energy theory for creep are demonstrated for the test data obtained from the canvas laminate.

Effect of variations in degree of structural order on some physical properties of cellulose and cellulose acetate yarns. Robt. W. Work, Celanese Corp. of Am. *Textile Research J. 19,* 381-93 (July, 1949).

It is shown by means of x-ray diffraction diagrams that cotton, a highly crystalline and oriented material, will yield a secondary cellulose acetate, of the type used in textile yarns, which gives an x-ray pattern showing a highly amorphous structure. However, by dry stretching or by swelling and allowing limited mobility the orientation of the acetate may be increased. Cellulose acetate fibers may be converted into highly crystalline celluloses, the orientation of the original material carrying over into a hydrolyzed product. The increase in crystallinity produced by converting cellulose acetate to cellulose increases the tenacity throughout the entire range of orientations. Dye retention similarities between mature cotton and oriented cellulose yarn on the other hand indicate that orientation may be one basic difference between mature and immature cottons.

Fibrous proteins. *Nature 164,* 33-6 (July 2, 1949).

This discussion of the structure of fibrous proteins consists of the following: "Rubber-like properties of hair keratin," by K. H. Meyer and C. Haselback, and a reply by H. J. Woods; and "Classification of fibrous proteins", by K. H. Meyer and a reply by W. T. Astbury.

Formation of polymers in wool. M. Lipson & J. B. Speakman, Leeds University. *J. Soc. Dyers Colourists 65,* 390-401 (Aug. 1949).

This paper describes methods for internally depositing polymers in wool in order to achieve 2-tone effects in dyeing, increased wear resistance, reduced milling shrinkage, and to decrease the extension of wool fibers in water. The wool fibers are impregnated with a dilute solution of ferrous ammonium sulfate, dried, and then treated with a solution of methacrylic acid containing a trace of hydrogen peroxide. Preferential internal polymerization is brought about by the hydroxy radicals formed inside the fibers when the hydrogen peroxide encounters ferrous ions. The reaction is best carried out at a low pH and in the absence of oxygen.

Fundamental study of fabric properties. E. V. Lewis, E. I. duPont de Nemours & Co. *Textile J. Australia 24,* 428-31, 438 (July, 1949).

See TTD: *6,* 459.

Heat stability of cellulose acetate. Evan F. Evans & Lane F. McBurney, Hercules Powder Co. *Ind. Eng. Chemistry 41,* 1260-64 (June 1949).

This paper, one of a group of 3 on oxidative stability of cellulose derivatives, deals with plastics- and film-type acetate but may contain data applicable to textile fibers. The acetate, much more resistant to oxidation than other esters or ethers, frequently required long induction periods before oxidation began, even at 160°C. When oxidation started at 160°, it proceeded rapidly with the evolution of volatile products, probably water, acetic acid, and carbon monoxide, with development of an orange-yellow color, and with decrease of viscosity. Saponification analyses indicated an increase of combined acetic acid as oxidation progressed, but other evidence suggested a decrease. Based on this work, recommended criteria of heat stability are either length of induction period before oxidation starts or time required for equal oxidation (measured by color development or by increase in fluidity). Addition of stabilizers led to erratic results, because of retained solvent, but there was little doubt that traces of sulfuric acid, free or combined, catalyzed oxidation of cellulose acetate.

Industrial application of the stress-strain relationship. Walter J. Hamburger, Fabric Research Lab., Inc. *J. Text. Inst. (Proc.) 40,* P700-20 (July, 1949).

Examples are given illustrating how the stress-strain diagram can be used to obtain materials with certain desired properties without the necessity of ascertaining empirical relationships applicable only in specific cases. The effect of staple length on yarn and fabric design, the effect of fiber blending on strength, the importance of elongation balance on the creation of a desirable parachute shroud line, and the effect of elongation balance on the creation of a satisfactory coated fabric are shown. Also discussed are the mechanical behavior of textiles under impact loading and ballistic testing.

Influence of orientation of molecules on fiber structure. R. W. Moncrieff. *Silk & Rayon 23,* 676, 678, 680 (May, 1949).

This is a discussion of the differences in the properties of stretched and non-stretched yarns.

Is the adsorption of water vapor by wool photosensitive? Carlos Camposortega, Felix Moncada & John W. Rowen, Nat'l. Bur. of Standards. *J. Soc. Chem. Industry 68,* 118-19 (Apr. 1949).

A reversible action of light on the adsorption of water vapor by wool, reported by British workers, is difficult to account for satisfactorily. Furthermore, it could not be confirmed experimentally by the authors, who therefore conclude that it must be very hard to reproduce or else non-existent.

Kinetics of the heterogeneous reaction between potassium permanganate and wool. P. Alexander & R. F. Hudson. *J. Phys. Colloid Chem. 53,* GCC-EB (June, 1949).

The rate of the heterogeneous reaction of potassium permanganate with wool has been measured under various conditions, and related by an empirical relationship to concentration and weight of wool. Different relations and temperature coefficients have been found for concentrated and dilute solutions. In acid solutions, the rate determining step is that of a solution diffusion process, at low concentrations, and probable diffusion through the fibers in concentrated solutions, as the surface becomes saturated with permanganate ions, but as reaction proceeds the rate decreases,

owing to the deposit of manganese dioxide firmly held within the fibers. This deposit, which is probably attached to the amino groups of the side chains of the keratin macromolecules, can only be removed by treatment with sodium bisulfite or hydrogen peroxide. After the deposit has been removed, and the reaction continued, the subsequent rate is of the same order as the initial rate of reaction. The results obtained with concentrated solutions have also been discussed, assuming absorption on specific sides to be the rate-determining process, and such a mechanism has been shown to be possible.

Origin and identification of damage to textile fibres. E. Kornreich. *J. Soc. Dyers Colourists 65*, 341-7 (July, 1949).

This paper discusses some of the causes of damage to fibers during manufacture, at home, in the laundry, and indicates the action of the damaging agents. Means of identifying the specific types of damage are pointed out. Four types of damage are generally recognized: (1) mechanical, (2) chemical, (3) microbiological, (4) radiation. Damage occurs in all stages of production and use and may even be inherent in the fibers from certain growth conditions. Damage manifests itself in some alteration in the normal properties of the fibers which may be apparent as latent weakness, or changes in color and loss of luster.

Oxidation of cellulose with nitrogen tetroxide. Anon. *Textile Mfr. 75*, 393 (Aug. 1949).

This is a review of a lecture by T. P. Nevell given at the annual meeting of the Society of Chemical Industry, Manchester, England, July, 1949. Nitrogen tetroxide is of considerable interest to the textile industry as a compound which will oxidize both the amorphous and crystalline regions of cellulose. In addition the compound is very specific in nature, converting only the primary alcohol groups to carboxyl groups. Nitrogen tetroxide like periodic acid, which is also specific in its reaction, has been used in the preparation of a series of oxycelluloses which have been valuable in elucidating the structure of cellulose.

Properties of rope. David Himmelfarb, U.S.N. *Fibres, Fabric & Cordage 16*, 234-7 (July, 1949).

The type of service, such as angle of bend, abrasion, and stretch requirements, affect rope characteristics and wear. When a rope is loaded, different forces come into play. These forces are diagrammed and described. The changes in a rope under tension are partially explained, and x-ray studies made by others on the subject are

described. Tables and a chart to show the dimensional changes in rope under tension for certain sizes of manila rope are included. For larger sizes of rope, the per cent reduction in circumference will be roughly equal to the per cent elongation when a load is applied.

Solubility and structure of cellulose acetates. Anon. *Textile Mfr. 75*, 395-6 (Aug. 1949).

This is a review of a paper presented by F. Howlett and A. R. Urquhart (Lansil, Ltd.) at the annual meeting of the Society of Chemical Industry, Manchester, England, July, 1949. Cellulose is insoluble because the cohesive forces in the crystalline region are strong and the long-chain polymer molecules are extremely rigid. Cellulose triacetate which can be obtained in a fairly crystalline condition with large forces between the rigid chains is also poorly soluble. Secondary cellulose acetate on the other hand has a more random structure and by varying the manufacturing conditions it is possible to obtain 2 products, both possessing the same acetic acid yield and yet one will be soluble in acetone and the other insoluble.

TEXTILE EDUCATION AND RESEARCH J

Chemistry Division of the National Research Council of Canada. E. W. R. Steachie & A. Cambron. *Research 2*, 225-9 (May, 1949).

The research programs of the various sections of the Chemistry Division, N. R. C. (Canada), are noted briefly. The Textile Section is investigating long term projects concerned with the laundering, rot proofing, and mothproofing of textiles or textile materials. Since the war, an investigation has been made into the mechanism of detergency. In the course of this work the adsorption of soaps on carbon (Micronex) has been studied in the presence of excess fatty acids and of excess alkali. Work on this project is continuing and work on the adsoprtion of soaps on cotton has been initiated.

General research committee meeting. [AATCC]. Anon. *Am. Dyestuff Reptr. 38*, 560-2 (July 25, 1949).

Brief reports are given on the research of the AATCC on: nomenclature and classification, fire resistance, chlorine retention, flammability, wash fastness, fastness to light, dimensional changes, snag resistance, crease resistance, unsupported film, standard soil, ageing of textiles, and wool detergency.